Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

For Quarter 3 2014, which spanned from July 1, 2014 to September 30, 2014, there were 8,814 incidents reported to the Indiana Trauma Registry at the Indiana State Department of Health. There were 95 hospitals that reported data, of which 11 were trauma centers and 84 were non-trauma centers. There were 5 hospitals that either started to report again or were new to reporting during this quarter compared to the previous quarter, while 1 hospital dropped off from reporting this quarter from the previous quarter. A map of the state with the reporting hospitals can be found on page 33. Community Hospital of Anderson & Madison, Franciscan St. Elizabeth Health—Lafayette East, Good Samaritan Hospital and St. Vincent Anderson Regional Hospital were the four hospitals with "in the process" status during the quarter. Trauma centers represented 52.7% of the data. There were 3,002 incidents reported for July, 3,042 reported for August, and 2,770 incidents reported for September.

The content of this report has changed due to suggestions and additions requested by the Indiana State Trauma Care Committee at the November 14, 2014 meeting. Explanations of the changes requested and adapted from the ISTCC meeting can be found on page 34.

Some general reminders include that the blue columns represent an Indiana average, red columns represent trauma centers, and green columns represent non-trauma centers. If a single percent is listed above a group of bars, the percent listed represents the average for Indiana. If a number is listed above a group of bars, it represents the count for Indiana. The category 'All Transfers' denotes the patient group where ED Disposition = Transferred to Another Hospital. **The category 'Linked Transfers' represents the patient group for whom the initial hospital and final hospital information could be linked.**

The E-codes used in this report follow the ICD-9 CDC matrix of external cause of injury.

Definitions:
Direct Admit: Patient is admitted directly to the hospital and does not spend time in Emergency Department. The ED Length of Stay should reflect a direct admittance.
External Cause of Injury: ICD-9-CM codes that are used to describe the mechanism or external factor that caused the injury event.
Trauma Type: The classification of the force applied to the body. Trauma type categories include blunt, penetrating, thermal, and other trauma.
Injury Severity Score: An anatomical scoring system defined as the sum of the three highest squared maximum Abbreviated Injury Scale (AIS) values to account for multiple injuries in the six body regions.

Acronyms:
E-code: External Cause of Injury
ED: Emergency Department
ICU: Intensive Care Unit
ISS: Injury Severity Score
LOS: Length of Stay

MVC: Motor Vehicle Collision

OR: Operating Room
Ps: Probability of Survival
CAHs: Critical Access Hospital

Calculations:
$Ps = 1/(1+e^{-b})$ where $b=b_o+b1(RTS) + b2(ISS) + b3(Age\ Index)$
Total GCS = Verbal GCS + Motor GCS + Eye GCS
$ISS = (AIS)^2 + (AIS)^2 + (AIS)^2$

Indiana State Department of Health
Trauma and Injury Prevention

Indiana Trauma Registry
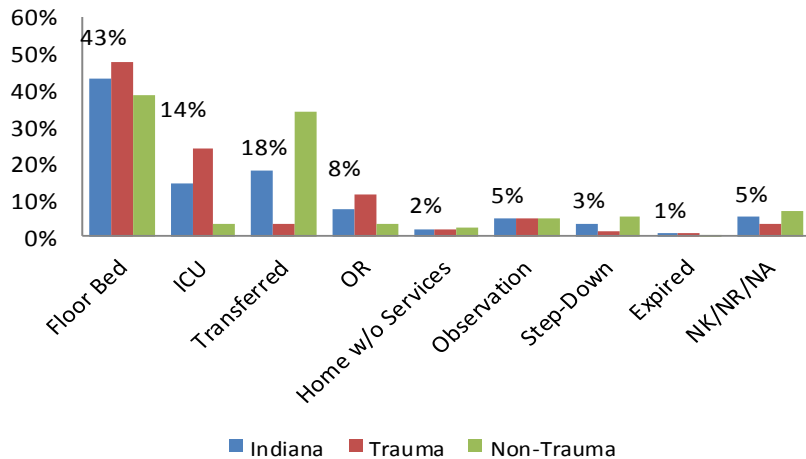
Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition by Percentage

*Indiana *Trauma *Non-Trauma

<1% ED Disposition: AMA; Home with Services; Other

ED Length of Stay (Hours)

*Indiana *Trauma *Non-Trauma
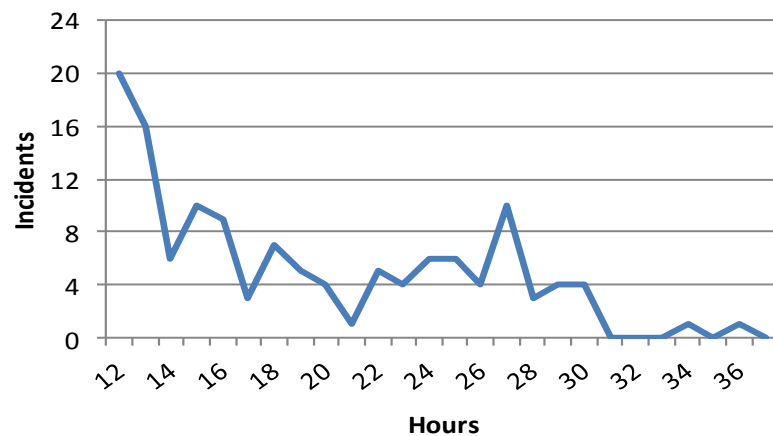
ED LOS >12 Hours

N=130

ED Disposition for ED LOS >12 Hours

Floor Bed   ICU   Transferred
OR   Home w/o Services   Observation
Step-Down   NK/NR/NA   Expired
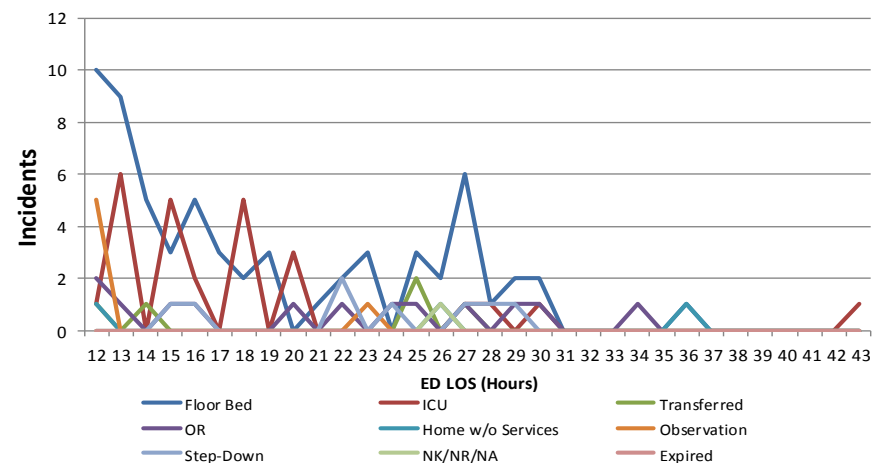
N=125   *No cases expired > 12 hours

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
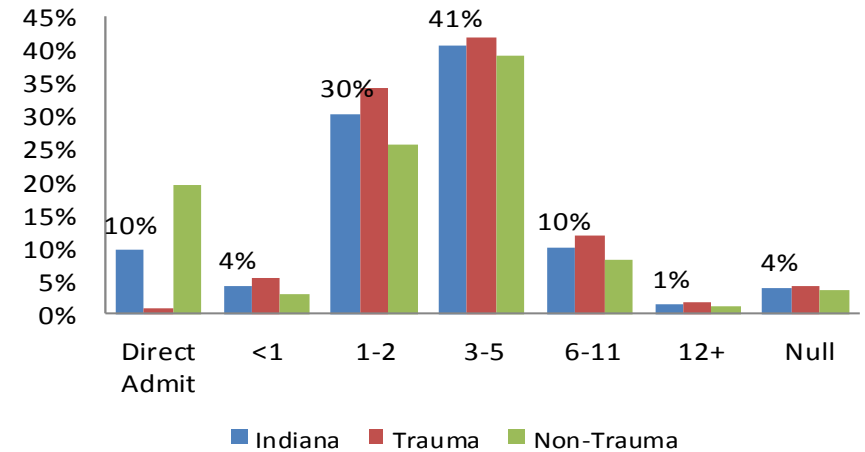**8,814 Incidents**

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED LOS (Minutes) - All Patients
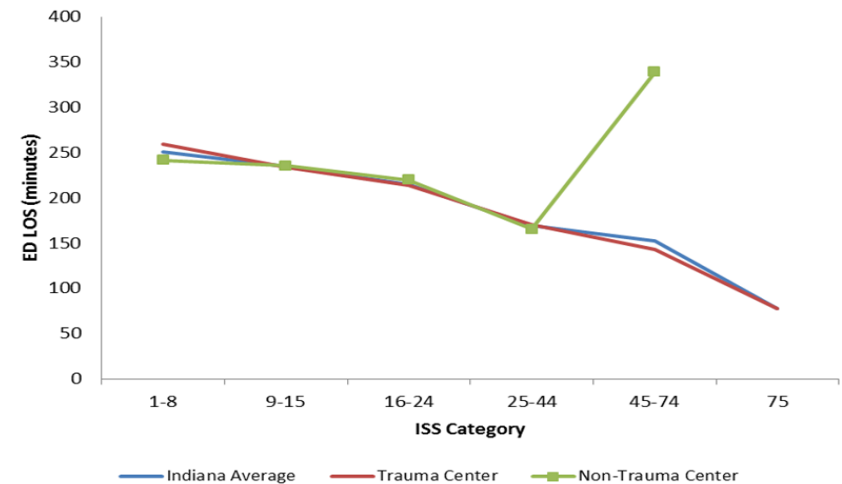
A table with all the values for ED LOS is found on page 31.

ED LOS (Minutes) by ISS

Note for EDLOS by ISS, there were 2 cases at Non-Trauma Centers with ISS greater than 45.

ED LOS (Minutes) by ISS
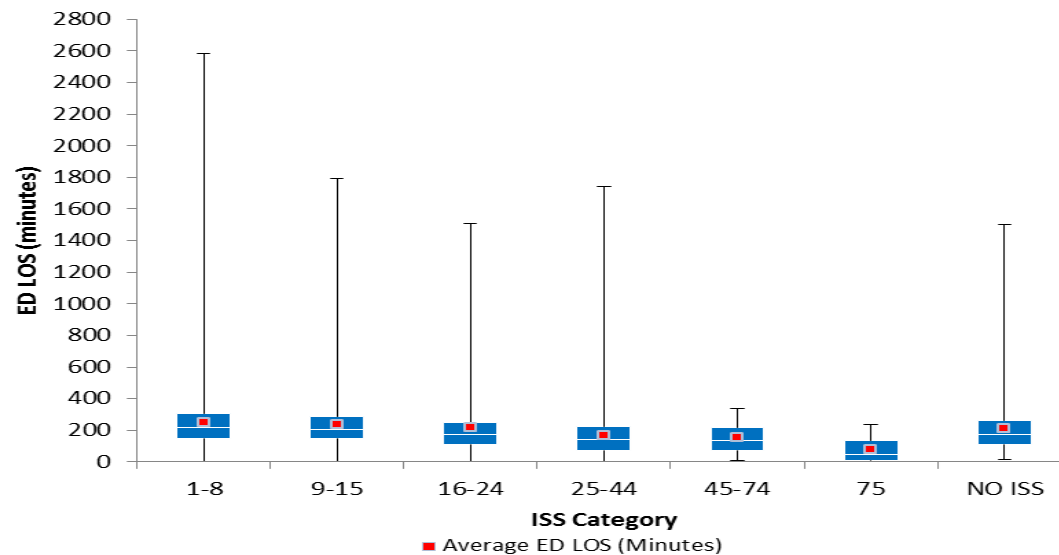
A table with values for ED LOS by ISS may be found on page 31.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Average ED LOS (Minutes) - All Patients
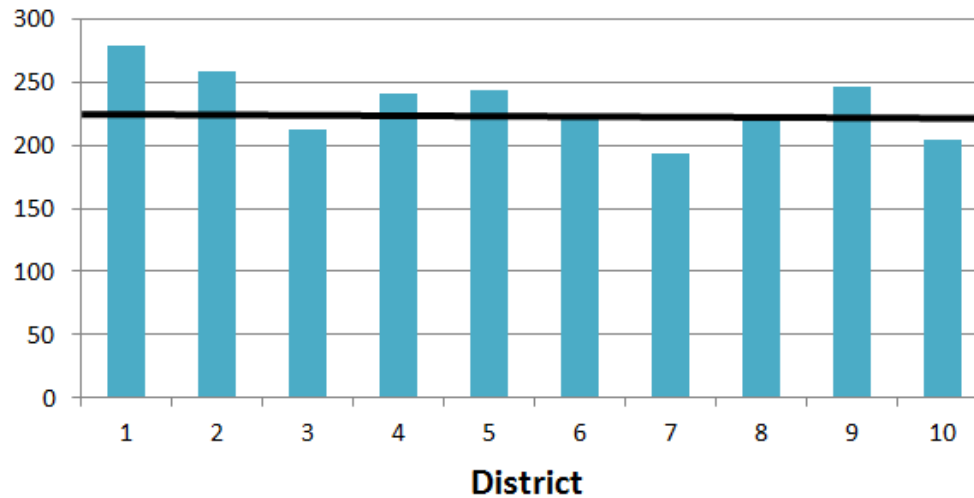
The black bar represents the average for each group.

Average ED LOS (Minutes) - All Transfers

Average ED LOS (Minutes) - All Critical Transfers
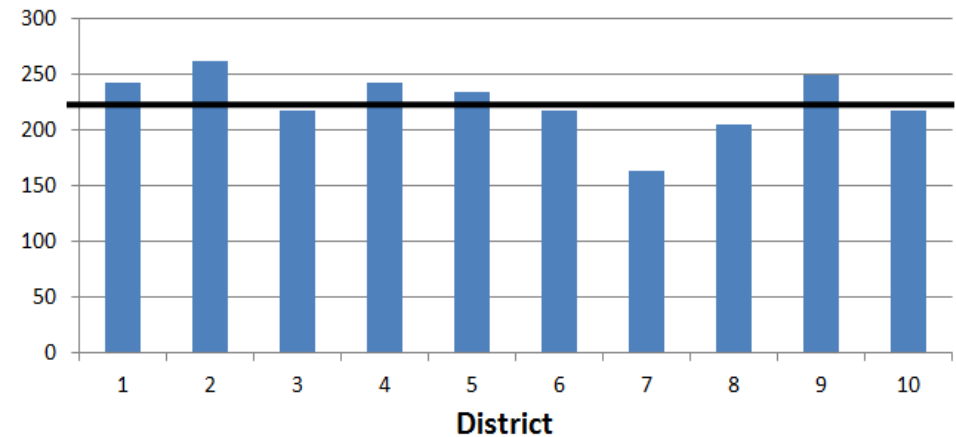
Critical Transfers have a GCS <=12 or a Shock Index > 0.9 or ISS >15.

4

Indiana Trauma Registry

Statewide Quarter 3 Data Report

July 1, 2014 to September 30, 2014

8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

*Districts 7 and 10 have all hospitals reporting. The average bar is for all patients.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition by ISS 1-14

ED Disposition by ISS 15-75

ED Disposition <1%: AMA; Home with services; Other (Jail, Mental Institution, etc.). Please note the difference in axis scale between the top and bottom graphs.
*A table with values for ED Disposition by ISS is found on page 32.

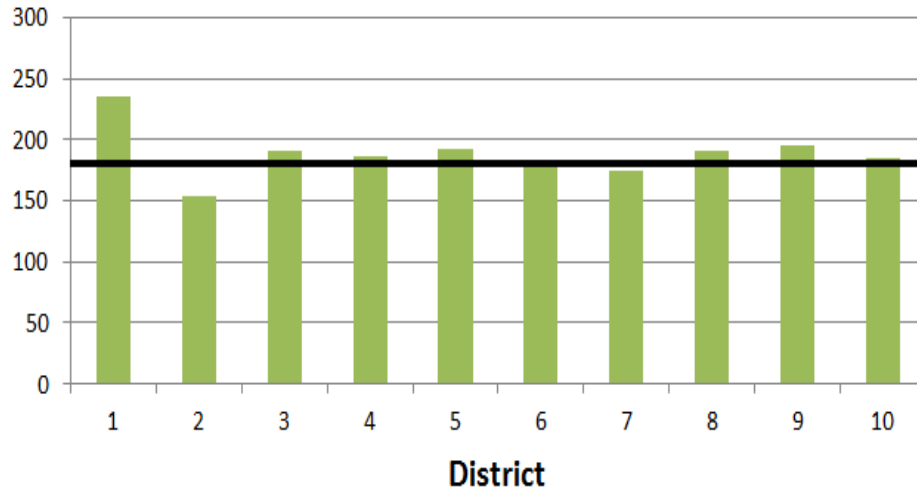# Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

Primary Payer Mix

ICU Length of Stay (Days)

Probability of Survival (Ps) by Percent

Probability of Survival (Ps) by Count
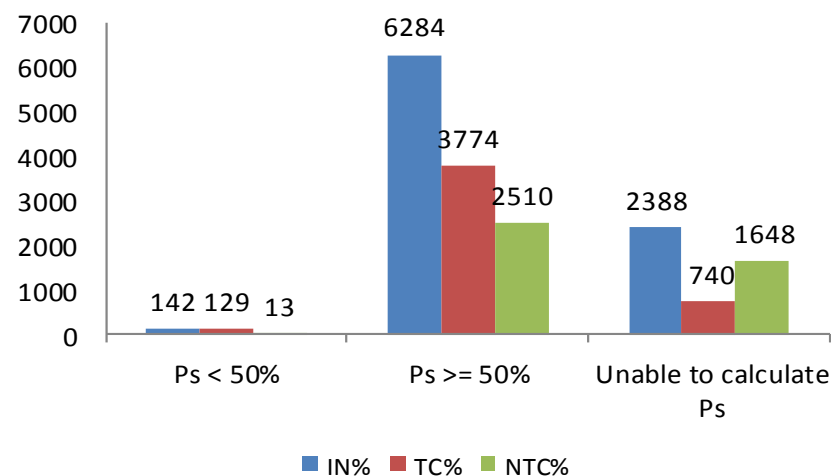
Due to the many data points required to calculate Ps, not every patient has a calculated Ps. These two graph represents 6,426 incidents with calculated Ps.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Hospital Disposition
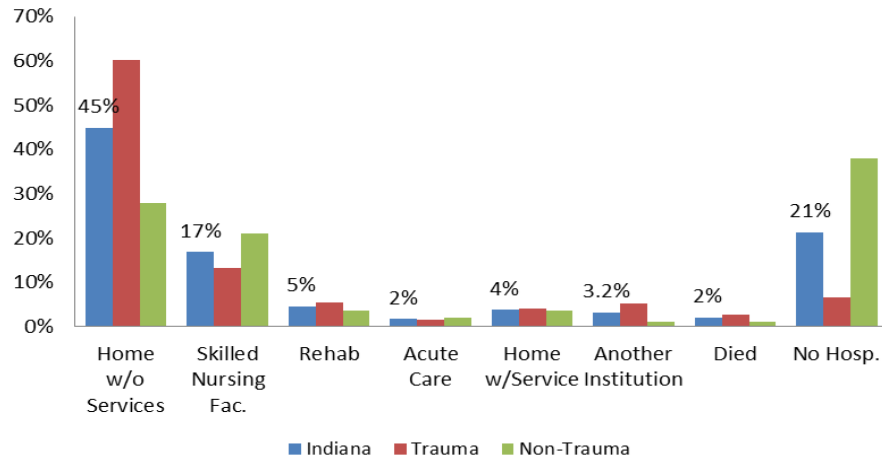
Hospital Length of Stay (days)
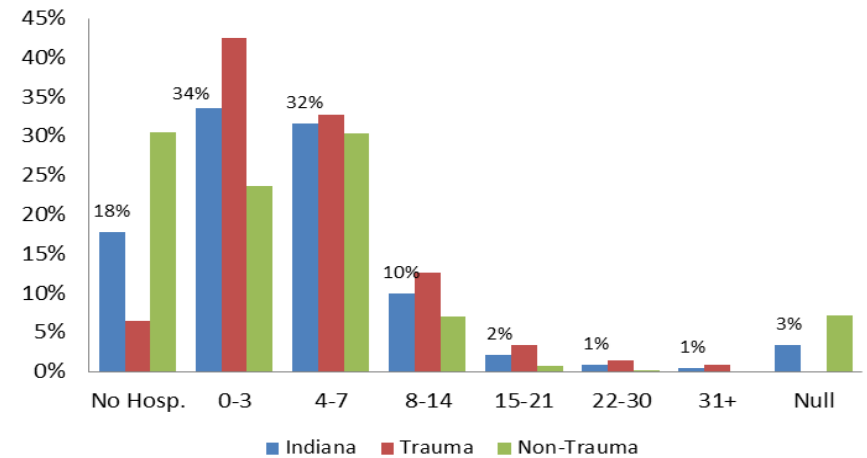
*There are new categories for the Hospital Disposition for the 2014 Data Dictionary
<1%: null, psych., long term care hospital, AMS, hospice and intermediate care

Hospital LOS (days) by Ps Trauma Centers
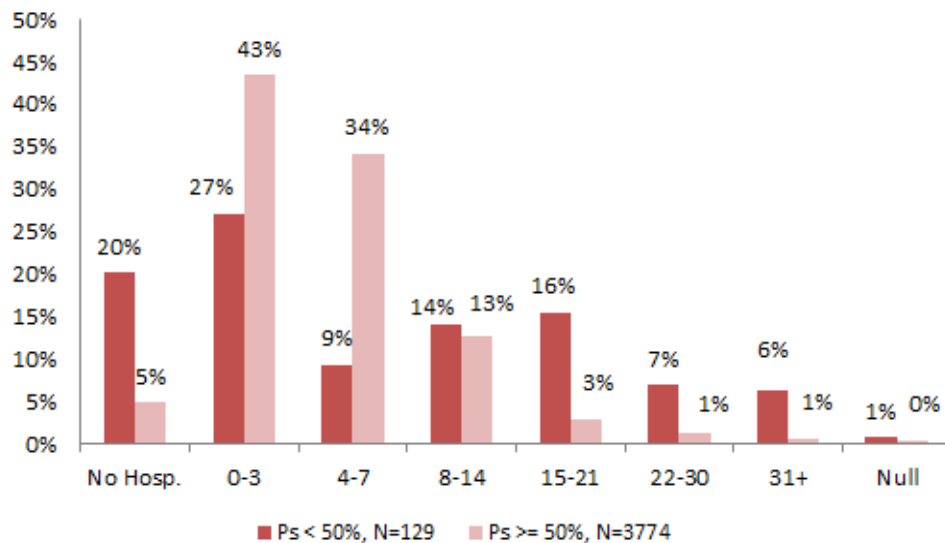
Hospital LOS (days) by Ps Non-Trauma Centers

8

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

Hospital Length of Stay > 15 days, N=312

Primary Payer Mix
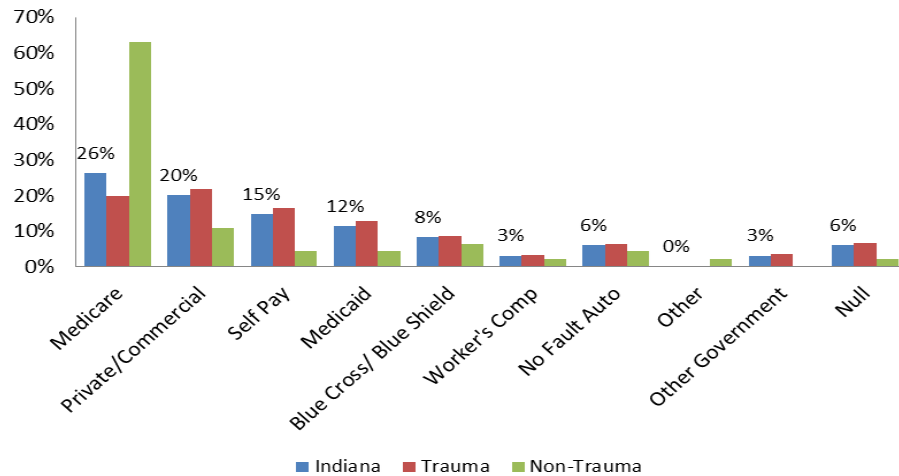
Hospital Disposition

Another Institution includes any other medical facility not defined in the other categories

Probability of Survival
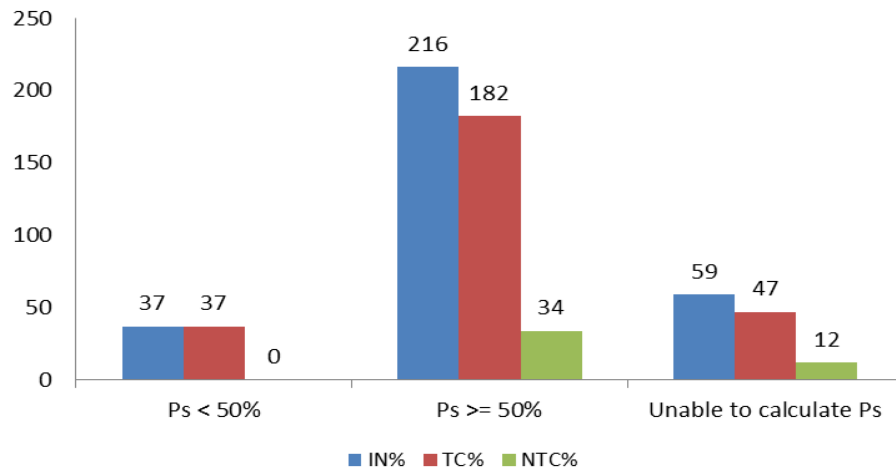
Cause of Injury
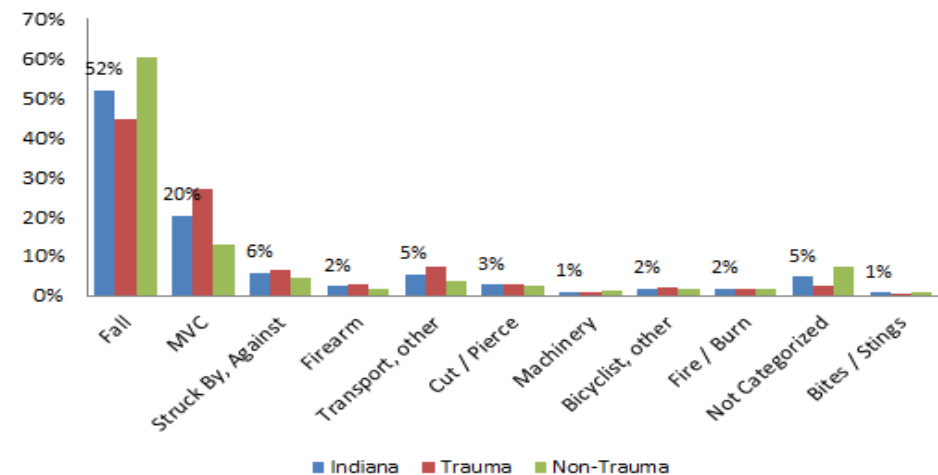
Hospital Length of Stay > 15 Days: Total N=312   Trauma Center N= 266;   Non-Trauma Center N=46

9

Indiana Trauma Registry

Statewide Quarter 3 Data Report
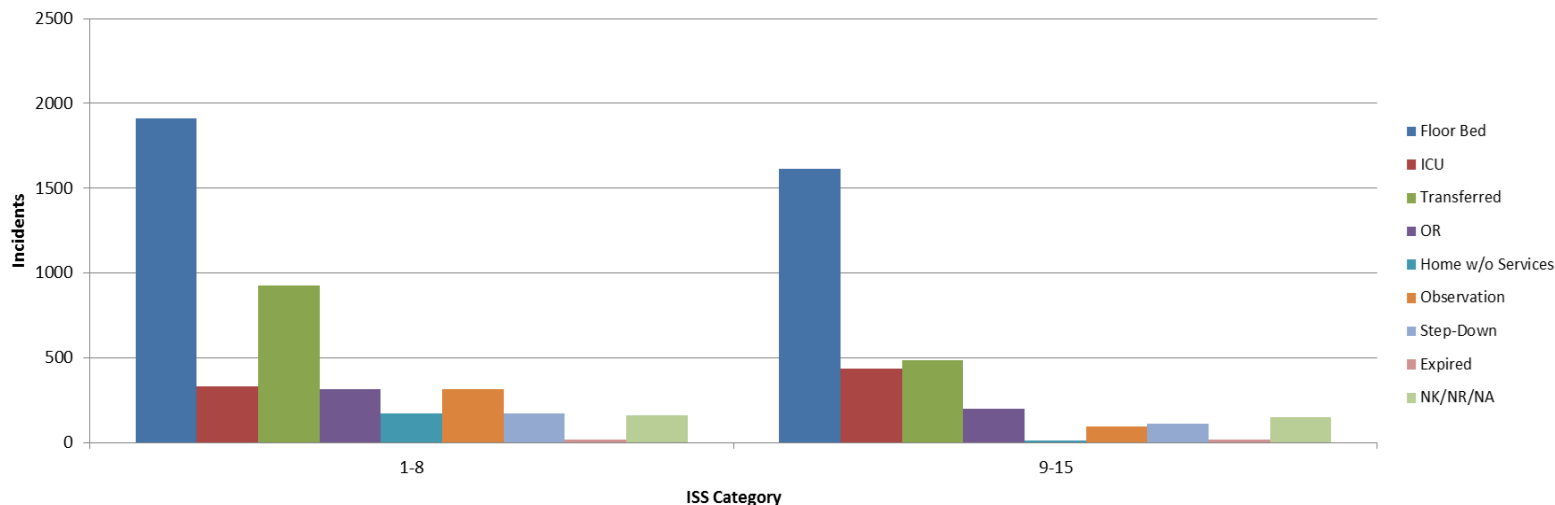July 1, 2014 to September 30, 2014
8,814 Incidents

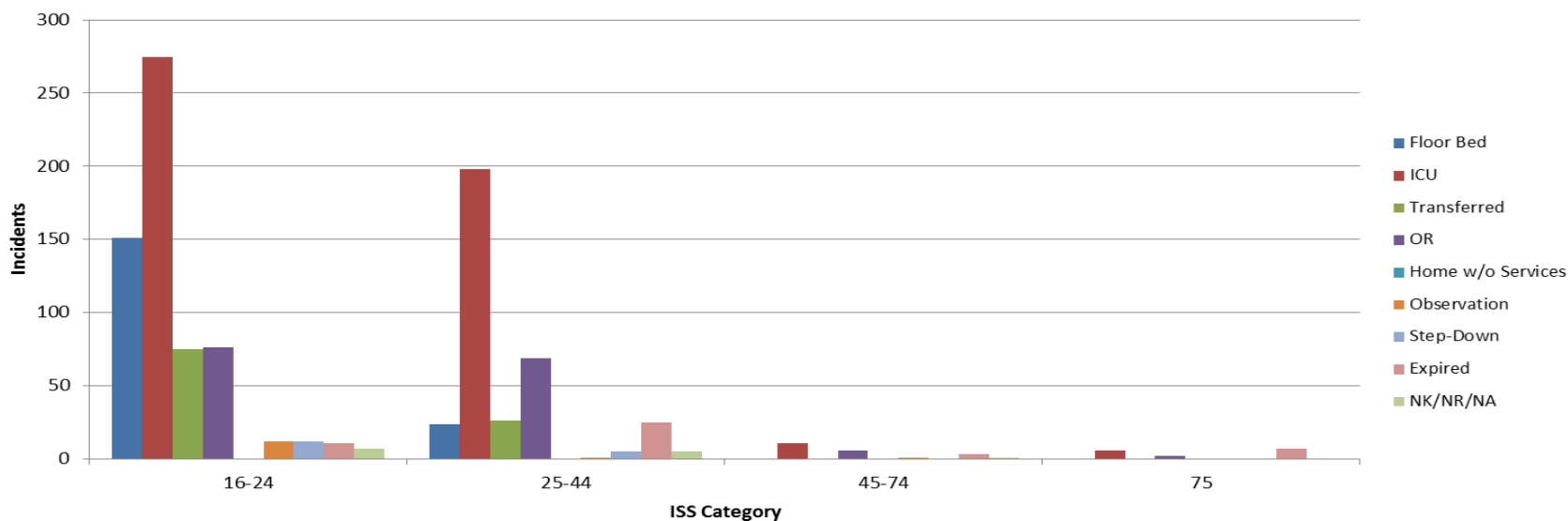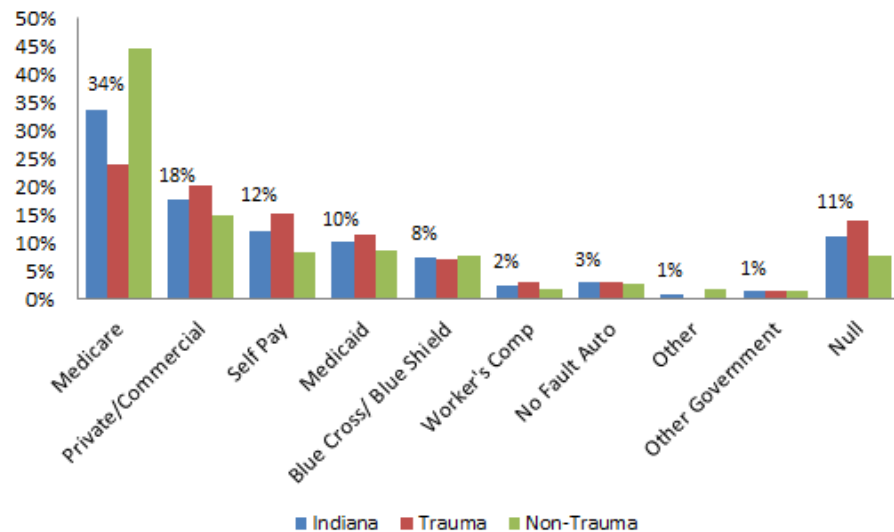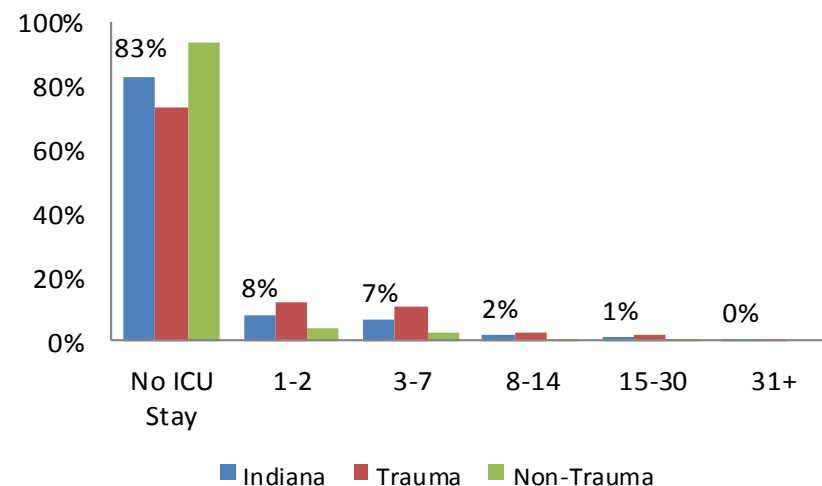95 Total Hospitals Reporting
Trauma Centers: 11 facilities   52.7% of data
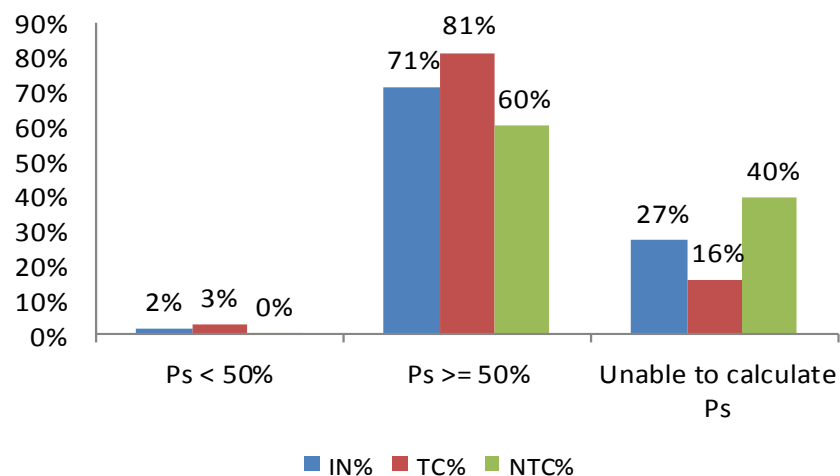(Non-Trauma) Hospitals: 84 facilities   47.3% of data

ED Disposition of Expired for Ps ≥ 50%, N=4

Patients with Ps ≥50% Expired in ED, N=4			
Gender	1 Female, 3 Males	**Interfacility Transfer**	1 Yes; 3 No
Average Age	68.3 years (21-92 years)	**Average Distance from Scene to Facility**	15.9 miles (1.4-44 miles)
Facilities	2 Non-Trauma Centers 2 Trauma Centers	**Signs of Life**	4 Arrived with signs of life
Transport Type	3 Ground ambulance; 1 Not Known	**Trauma Type**	4 Blunt
Cause of Injury	3 Falls, 1 MVC		

	Trauma Type	ISS	RTS- GCS Scale	RTS- Systolic Scale	RTS- Respiratory Scale	Revised Trauma Score (RTS)	B Value	PS	Signs of life
1	Blunt	25	4	4	3	7.55	1.82	0.86	Arrived with signs of Life
2	Blunt	4	3	4	3	6.61	2.82	0.94	Arrived with signs of Life
3	Blunt	29	0	4	4	4.09	0.44	0.61	Arrived with signs of Life
4	Blunt	9	2	4	3	5.68	1.64	0.84	Arrived with signs of Life

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

For Quarter 3, 2014, of the 8,814 incidents reported to the Indiana Trauma Registry, 1580 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 301 cases were probabilistically matched. The linked cases make up 9.1% of the Q3 2014 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,580 Incidents

Matched: 301 Incidents

Final Facility: 1,740 Incidents
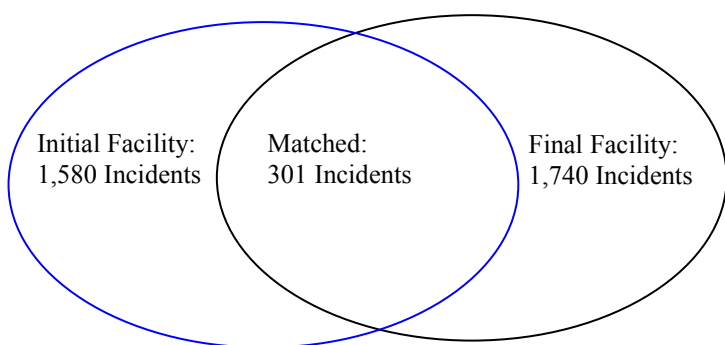
The initial facility in which transfers come from may be considered Critical Access Hospitals (CAHs). All Indiana CAHs are considered Rural, and must meet additional requirements to have a CAH designation, such as having no more than 25 inpatient beds and being located in a rural area. Facilities that are highlighted indicate that these facilities reported data for Quarter 3, 2014.

Within this transfer data section, the purple columns represent the transfer cases and the single percentages represent the percent for the transfer cases. For two demographic variables, patient age groupings and gender, the Indiana average is included to provide more insight to this transfer population.

Indiana Critical Access Hospitals (CAHs)

Adams Memorial Hospital	Pulaski Memorial Hospital
Cameron Memorial Community Hospital Inc	Putnam County Hospital
Community Hospital of Bremen Inc	Rush Memorial Hospital
Decatur County Memorial Hospital	Scott Memorial Hospital
Dukes Memorial Hospital	St Vincent Frankfort Hospital Inc
Gibson General Hospital	St Vincent Jennings Hospital Inc
Greene County General Hospital	St Vincent Mercy Hospital
Harrison County Hospital	St Vincent Randolph Hospital Inc
IU Health Bedford Hospital	St Vincent Salem Hospital Inc
IU Health Blackford Hospital	St. Mary's Warrick Hospital Inc
IU Health Paoli Hospital	St. Vincent Clay Hospital Inc
IU Health Tipton Hospital	St. Vincent Dunn Hospital Inc
IU Health White Memorial Hospital	St. Vincent Williamsport Hospital, Inc.
Jasper County Hospital	Sullivan County Community Hospital
Jay County Hospital	Union Hospital Clinton
Margaret Mary Community Hospital Inc	Wabash County Hospital
Parkview LaGrange Hospital	Woodlawn Hospital
Perry County Memorial Hospital	

Rural Hospitals

Columbus Regional Hospital	King's Daughters' Health
Daviess Community Hospital	Kosciusko Community Hospital
Doctor's Neuromedical	Marion General Hospital
Fayette Regional Health System	Memorial Hospital
Franciscan St Anthony Health - Michigan City	Memorial Hospital and Health Care Center
Franciscan St Elizabeth Health - Crawfordsville	Parkview Noble Hospital
Good Samaritan Hospital	Reid Hospital & Health Care Services
Henry County Memorial Hospital	Saint Joseph RMC - Plymouth
Indiana University Health La Porte Hospital	Schneck Medical Center
Indiana University Health Starke Hospital	

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents—301 Transfers
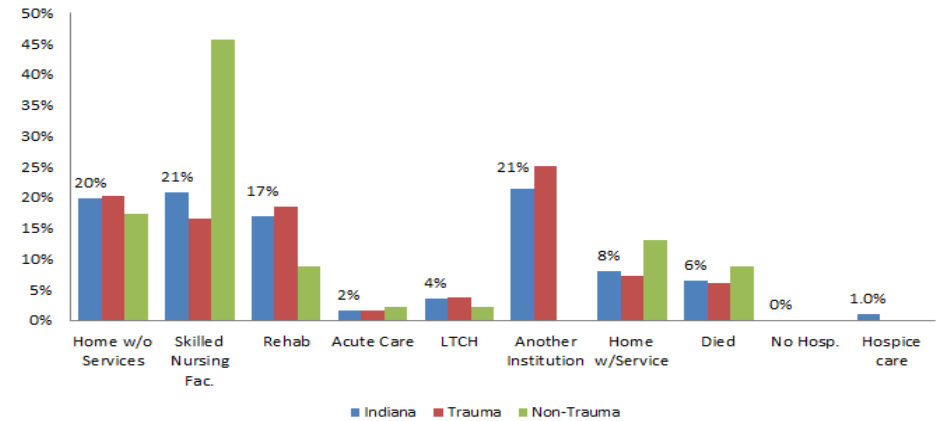
95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Facility to Facility Transfers

For Transfer Patients:		
Initial Hospital Type	**Final Hospital Type**	**Incident Counts**
Rural Hospital	**Rural Hospital**	**0**
Critical Access Hospital	**Rural Hospital**	**0**
Trauma Center	**Trauma Center**	**3**
Hospital	**Rural**	**3**
Critical Access Hospital	**Hospital**	**4**
Rural Hospital	**Hospital**	**17**
Hospital	**Hospital**	**17**
Rural Hospital	**Trauma Center**	**53**
Critical Access Hospital	**Trauma Center**	**64**
Hospital	**Trauma Center**	**140**

Facility Transfer Type
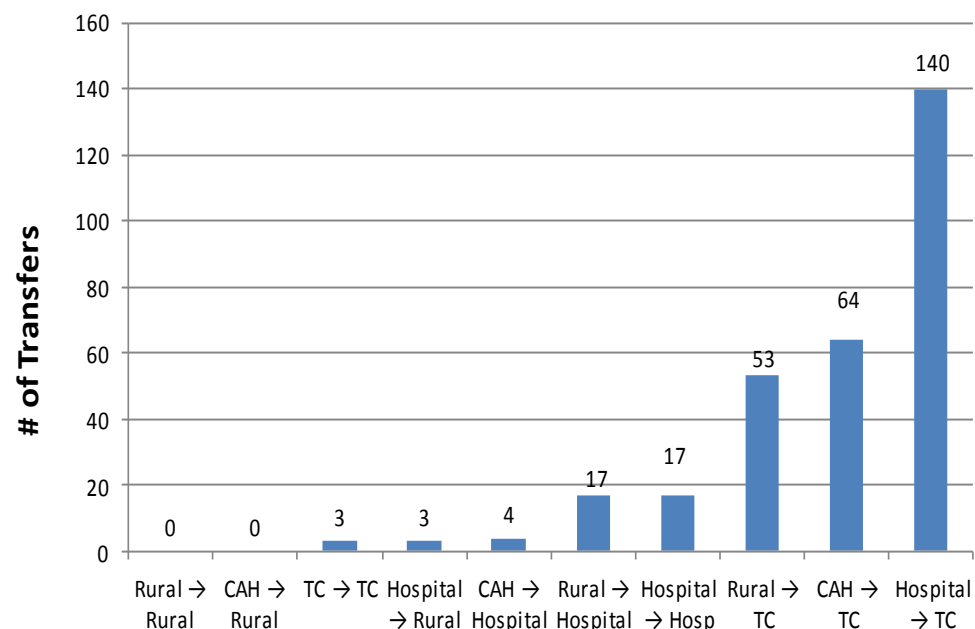
Rural = Rural Hospital; TC = ACS Verified Trauma Center; CAH = Critical Access Hospital; Hospital = does not fall into above categories

*There were four hospitals deemed "in the process" trauma centers for the purposes of the triage and transport rule during Q3, 2014. Because this report spans data from July 1, 2014 through September 30, 2014, and there were fewer than five hospitals with "in the process" status during the entire quarter, we cannot separate the "in the process" trauma centers from "hospitals" because of respect for patient privacy. Patients may be able to be identified due to isolating one hospital's data.

Indiana Trauma Registry

## Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents—301 Transfers

95 Total Hospitals Reporting
Trauma Centers: 11 facilities   52.7% of data
(Non-Trauma) Hospitals: 84 facilities   47.3% of data

For Linked Transfer

For Transfer Patients:				
	All Transfer Patients	*Critical* Transfer Patients	*Physiological Critical*** Transfer Patients	*ISS Critical**** Transfer Patients
Number of Patients	301	113	100	52
EMS Notified to Scene	8.2 minutes	8.3 minutes	8.1 minutes	7.9 minutes
EMS Scene Arrival to Departure	16.4 minutes	16.5 minutes	16.3 minutes	15.2 minutes
EMS Scene Departure to Initial Hospital ED Arrival	16.7 minutes	15.6 minutes	15.1 minutes	18.9 minutes
Initial Hospital ED Arrival to Departure	2 hours 52.4 minutes	2 hours 50 minutes	2 hours 50 minutes	2 hours 15 minutes
Initial Hospital ED Departure to Final Hospital ED Arrival	58.1 minutes	55.9 minutes	55.8 minutes	1 hour 14.7 minutes
TOTAL TIME	4 hours 2 minutes	4 hours 26 minutes	4 hours 25 minutes	4 hours 12 minutes

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.

**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.

***ISS Critical Transfer patient is defined as having an ISS > 15.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents—301 Transfers

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data
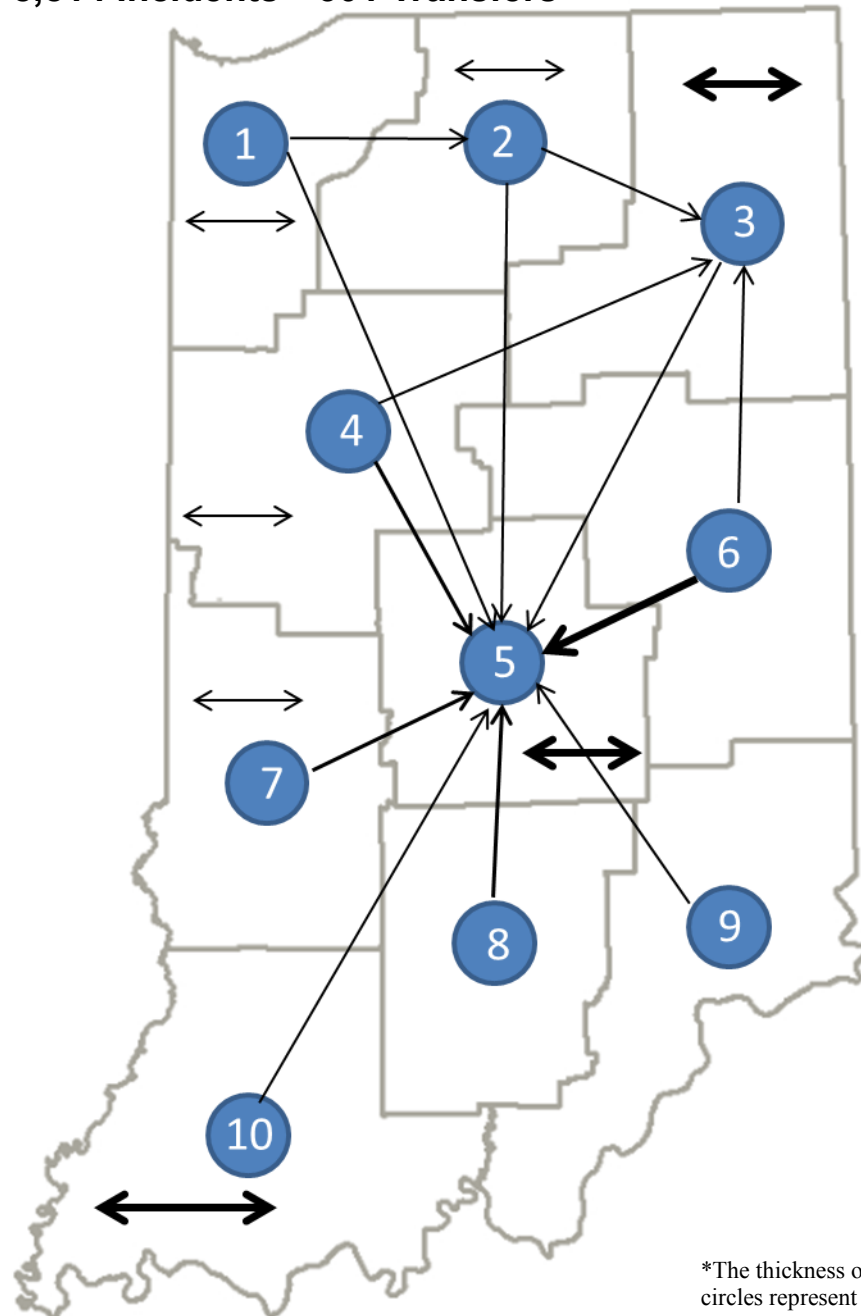
For Transfer Patients:		
Public Health Preparedness District Initial Hospital	**Public Health Preparedness District Final Hospital**	**Incident Counts**
1	1	8
1	2	10
1	5	2
2	2	2
2	3	7
2	5	2
3	3	48
3	5	2
4	3	3
4	4	2
4	5	12
5	5	77
6	3	2
6	5	45
7	5	28
7	7	4
8	5	13
9	5	1
10	5	1
10	10	32

*The thickness of the line indicates the frequency of transfers out of or within the public health preparedness district The circles represent transfers from a specific Public Health Preparedness District, not of a specific hospital or county.

14

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents—301 Transfers

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

For Linked Transfer Patients:

For Transfer Patients:

	All Transfer Patients	*Critical** Transfer Patients	*Physiological Critical*** Transfer Patients	*ISS Critical**** Transfer Patients
Number of Patients	301	113	100	52
Total Time	4 hours 2 minutes	4 hours 26 minutes	4 hours 25 minutes	4 hours 12 minutes
Total Mileage	54.7	54.8	54.7	60.3
Injury Scene to Initial Hospital Mileage*	7.9	8.0	7.9	7.1
Initial Facility to Final Facility Mileage	46.8	46.8	46.8	53.2

Estimated Average Distance (miles) by Region (region of final hospital):

Region	Injury Scene to Initial Facility Mileage†	Initial Facility to Final Facility Mileage	Total Mileage	Drive Count	Air Count
Indiana Average	7.9	46.8	54.7	256	45
North Region	7.2	40.9	48.0	127	17
Central Region	9.5	52.2	61.7	101	25
South Region	5	52.8	57.8	28	3

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.

**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.

*** ISS Critical Transfer patient is defined as ISS > 15 at the initial hospital.

†Injury Scene to Initial Facility Mileage location estimated by zip code centroid

Statistics for Estimated Average Distance by Region calculated by Public Health Geographics, Epidemiology Resource Center, ISDH

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents—301 Transfers

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Patient Age Groupings

- Pediatric (<18): Indiana 13%, Transfers 9%
- Adult: Indiana 49%, Transfers 60%
- Older Adult (>65): Indiana 38%, Transfers 32%

Legend: Indiana, Transfers

Patient Gender

- Male: Indiana 55%, Transfer 55%
- Female: Indiana 45%, Transfer 45%

Legend: Indiana, Transfer

Injury Severity Score (ISS)

- 1-8: Initial Hospital 59%, Final Hospital 47%
- 9-14: Initial Hospital 30%, Final Hospital 34%
- 15-24: Initial Hospital 5%, Final Hospital 12%
- 25-44: Initial Hospital 3%, Final Hospital 7%
- 45-74: Initial Hospital 0%, Final Hospital 0%
- 75: Initial Hospital 0%, Final Hospital 0%
- No ISS: Initial Hospital 3%, Final Hospital 0%

Legend: Initial Hospital, Final Hospital

Trauma Type- Final Hospital

- Blunt: 87%
- Penetrating: 6%
- Thermal: 3%
- Other: 2%
- NK/NR: 3%

Legend: Transfer
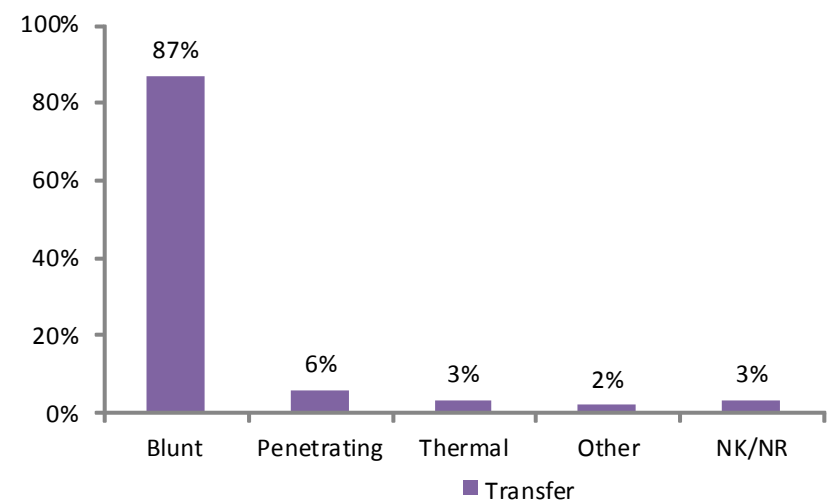
There was 1 case in the ISS 45-74 category and 1 case in the 75+ ISS category

Indiana Trauma Registry

## Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents—301 Transfers

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Transport Mode– Final Hospital
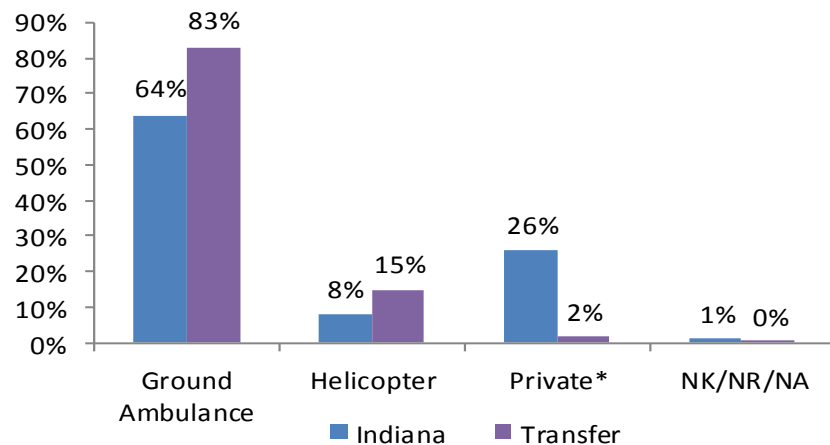
<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in

ED Disposition by Percentage- Final Hospital
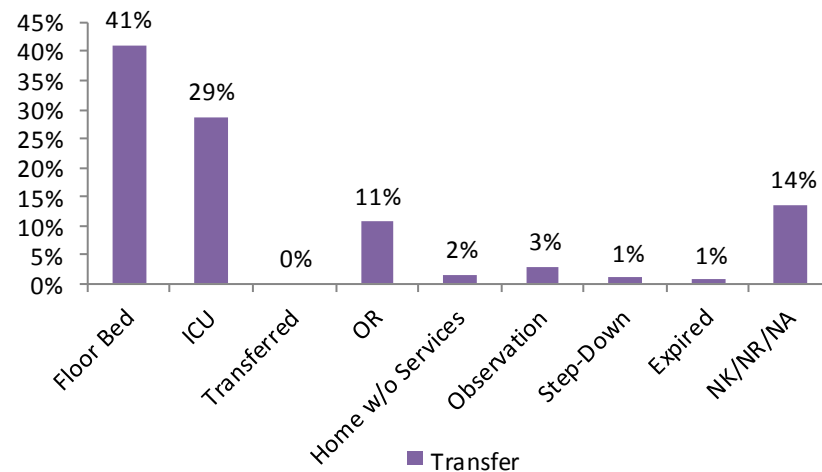
ED Length of Stay (hours)- Final Hospital
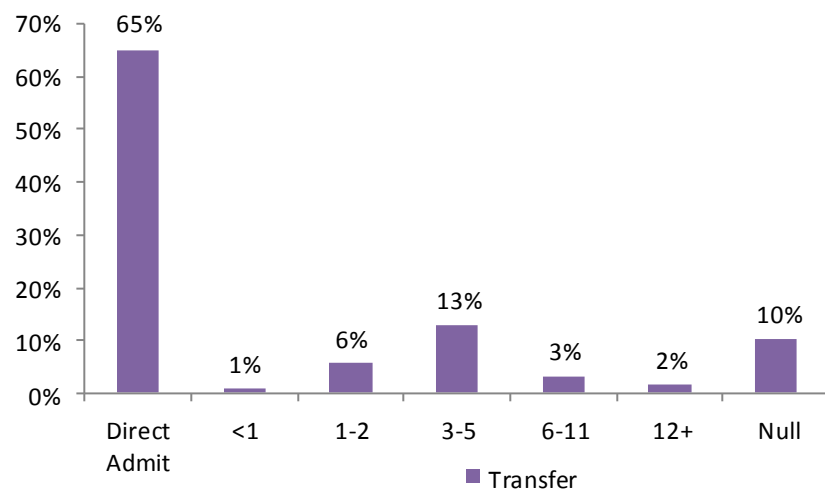
ICU Length of Stay (days)- Final Hospital
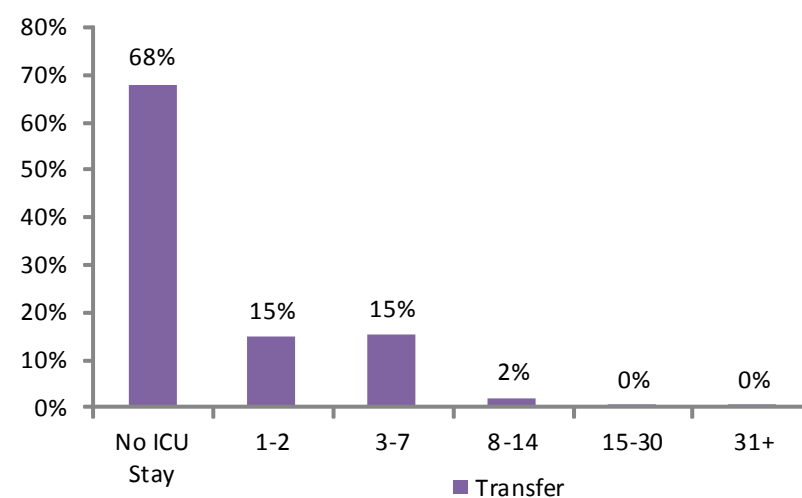
Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents—301 Transfers

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Discharge Disposition– Final Hospital
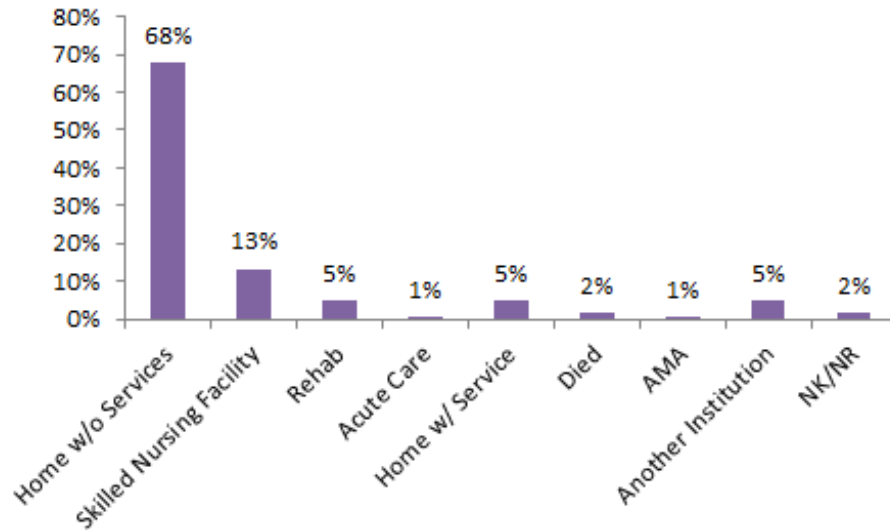
Helicopter Transfers by ISS– Final Hospital

All Transfers, N=301
Helicopter Transfers, N=45
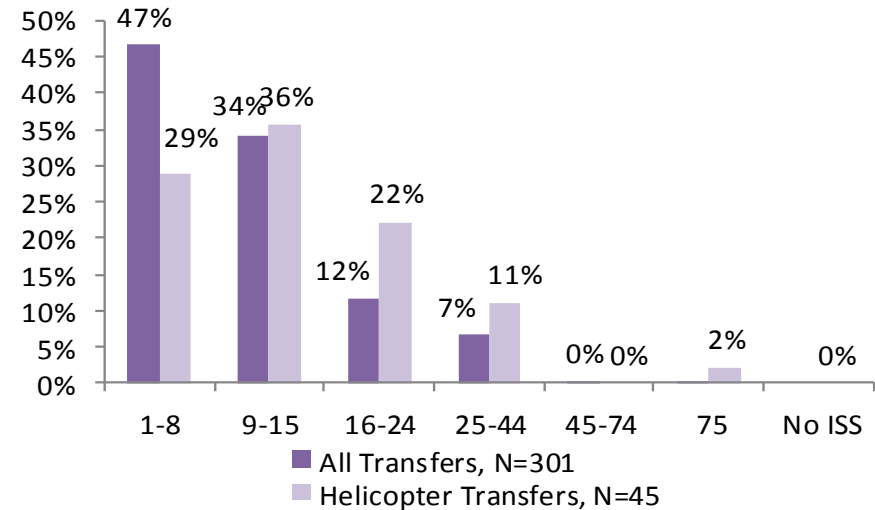
Transfer Delay Indicated- Initial Hospital
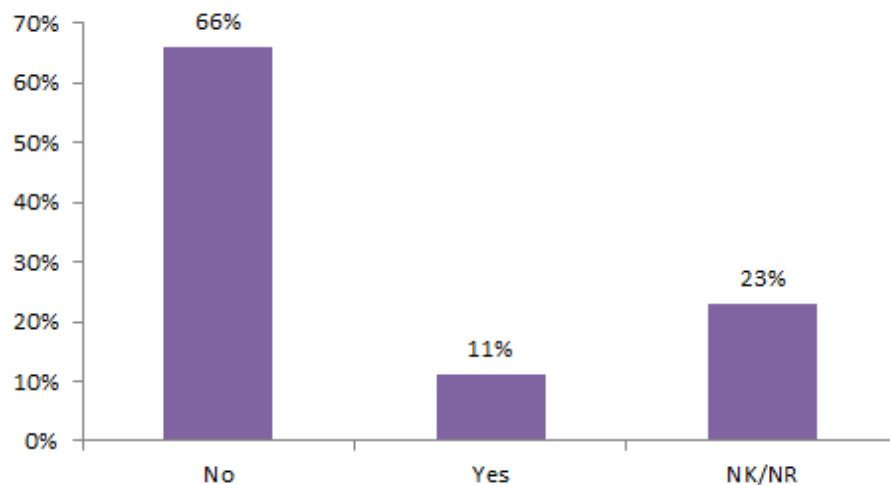
Initial Facility Transfer Delay Reason -
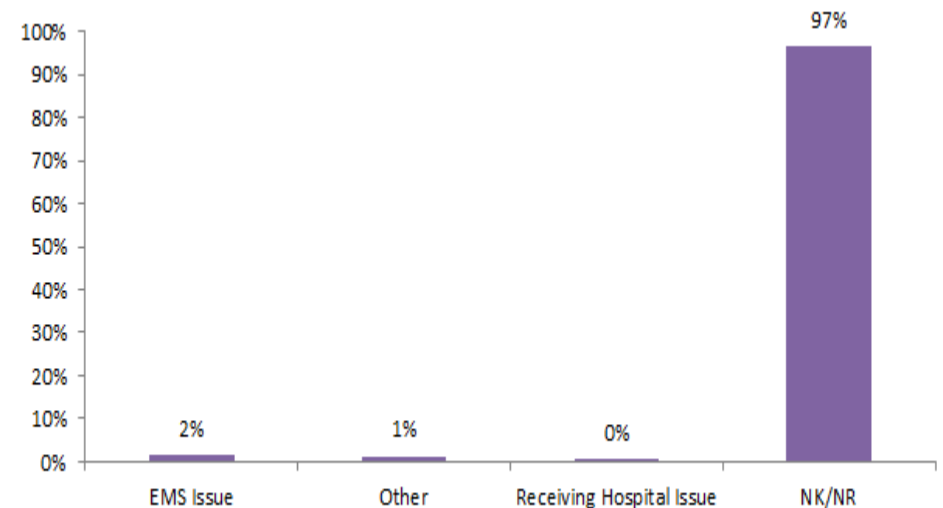
Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Patient Age (Years)

Legend: Indiana, Trauma, Non-Trauma

Age	Indiana	Trauma	Non-Trauma
0-14	11%		
15-24	10%		
25-34	9%		
35-44	8%		
45-54	11%		
55-64	12%		
65-74	11%		
75-84	14%		
85+	14%		
NK/NR	0%		

Patient Age Groupings

	Indiana	Trauma	Non-Trauma
Pediatric (<18)	13%	15%	11%
Adult	49%	56%	42%
Older Adult (>65)	38%	29%	47%

Patient Gender

	Indiana	Trauma	Non-Trauma
Male	55%	60%	49%
Female	45%	40%	50%
Unknown	0.5%	0%	1%
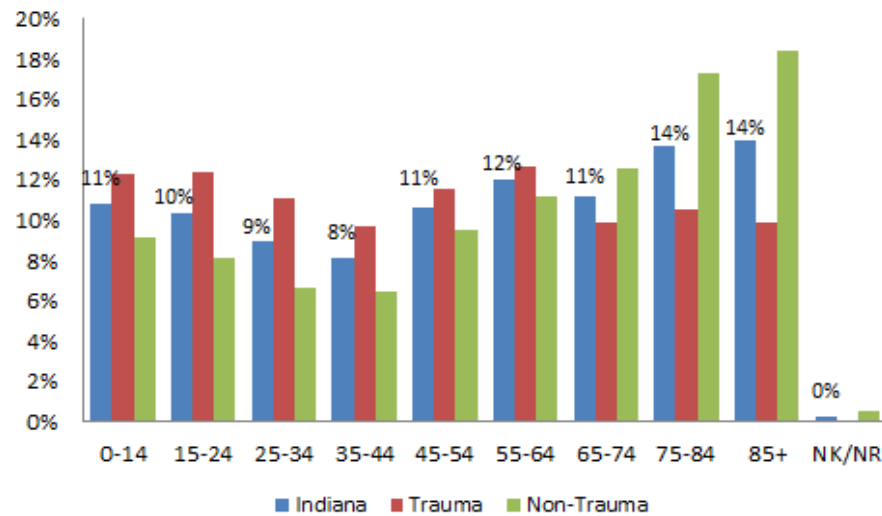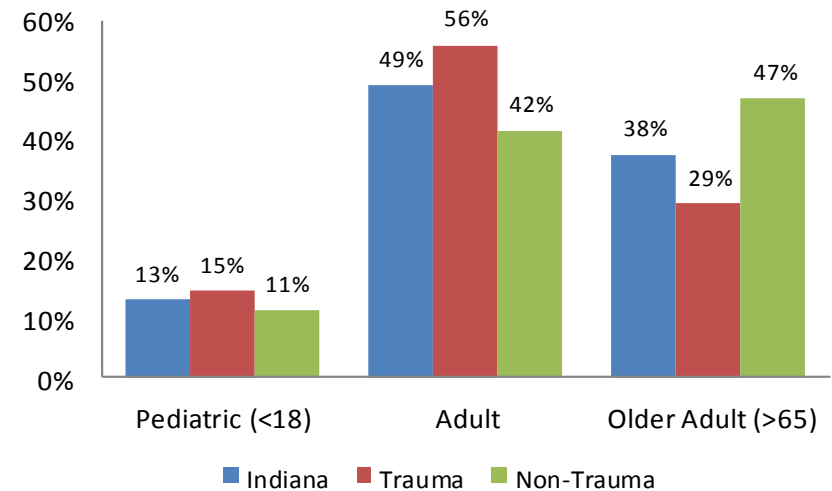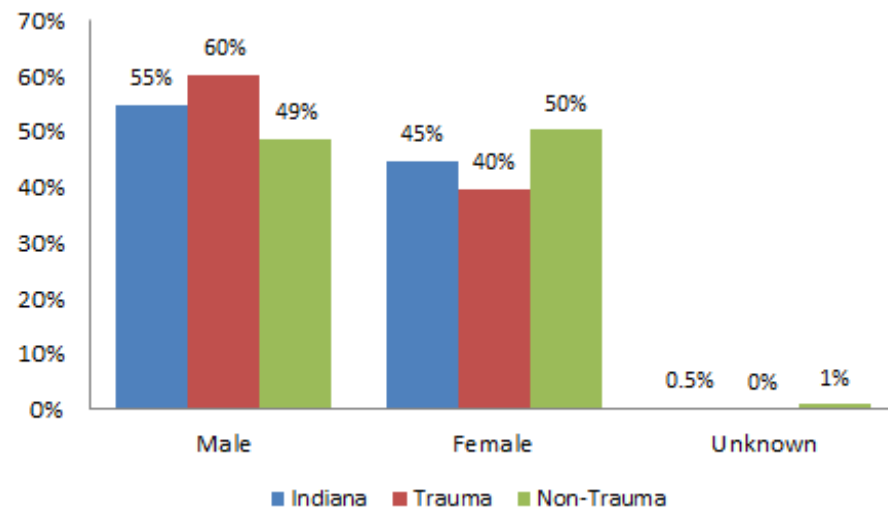
Patient Race

	Indiana	Trauma	Non-Trauma
White	88%	86%	90%
Black or African American	9%	11%	7%
Other Race	1%	2%	1%
Not Known / Not Recorded	1%	1%	2%

<1% Race - Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native

19

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Injury Severity Score (ISS)

There was one case in both the 45-74 and 75+ categories.

Cause of Injury

<1% COI: Pedestrian Traffic Accident, Natural/Environment, Overexertion, No E-Code

Trauma Type

Transport Mode
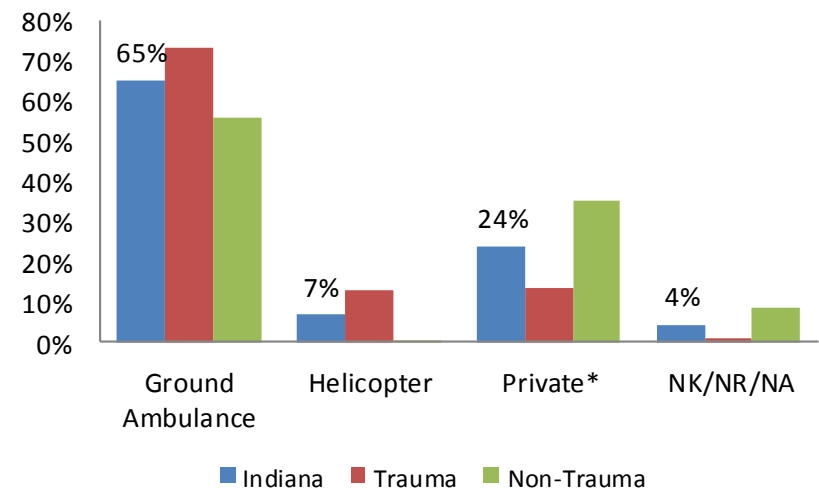
<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

All Patients

Average ED LOS (Hours)

	Indiana	Trauma Centers	Non-Trauma Centers
Upper CL	6.25	6.31	6.16
▲ Mean	3.82	3.85	3.79
Lower CL	1.39	1.39	1.42

Trauma Centers-Average ED LOS (Hours)

	Trauma	40	135	123	107	136	37	24	59	132	85	97
Upper CL	6.31	4.50	4.79	5.58	5.69	6.25	6.07	6.24	6.24	6.92	7.08	8.14
▲ Mean	3.85	2.43	2.63	3.29	3.46	3.77	3.79	3.86	3.92	4.54	4.60	5.30
Lower CL	1.39	0.36	0.47	1.00	1.23	1.29	1.51	1.48	1.60	2.16	2.12	2.46

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

The ED LOS for these graphs was modeled using time-to-event analysis. The purposes of using this analysis were to account for censoring (death) and to see how variables influence ED LOS. The outcome variable was ED LOS and the independent variables were total GCS and age. If total GCS was missing but manual total GCS was recorded, then the manual total GCS was used. These two variables were used because they were the most similar to variables used in the published, peer-reviewed literature on ED LOS. Both were significant in the model. Increasing total GCS and age led to a slightly shorter ED LOS. Hospitals that did not have enough incidents with total GCS or age could not be modeled.

In the chart on the left, note the trauma center average is above the mean and the non-trauma center is below the mean. The mean, 95% confidence limit and lower confidence limit are listed for each group.

In the chart on the right, the data is for the trauma centers. The trauma center average is in the first column on the left side. The information for each trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit are listed for each group.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

HOURS

	Non-Trauma	NTC 91	NTC 60	NTC 118	NTC 29	NTC 16	NTC 96	NTC 55	NTC 90	NTC 68	NTC 129	NTC 8	NTC 84	NTC 14	NTC 28	NTC 67	NTC 3	NTC 26	NTC 89	NTC 134	NTC 126
Upper CL	6.16	0.68	1.17	3.09	3.81	2.00	4.19	4.43	3.94	2.32	4.51	4.40	4.59	4.51	4.07	4.61	4.58	4.61	4.72	4.99	4.77
▲ Mean	3.79	0.68	1.17	1.43	1.75	2.00	2.09	2.25	2.30	2.32	2.34	2.35	2.38	2.39	2.44	2.52	2.55	2.67	2.68	2.75	2.79
Lower CL	1.42	0.68	1.17	-0.23	-0.31	2.00	-0.01	0.07	0.66	2.32	0.17	0.30	0.17	0.27	0.81	0.43	0.52	0.73	0.64	0.51	0.81

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NTC 52	NTC 66	NTC 70	NTC 121	NTC 106	NTC 112	NTC 53	NTC 115	NTC 95	NTC 38	NTC 131	NTC 78	NTC 25	NTC 43	NTC 83	NTC 4	NTC 103	NTC 109	NTC 32	NTC 120	NTC 110
Upper CL	6.16	4.88	5.04	4.97	5.01	5.00	5.14	5.34	5.06	5.09	5.27	5.10	4.99	5.31	5.49	5.30	5.48	3.28	5.46	5.46	5.45	5.29
▲ Mean	3.79	2.81	2.86	2.86	2.86	2.89	2.92	2.96	2.96	2.99	3.04	3.04	3.06	3.19	3.19	3.20	3.24	3.28	3.29	3.31	3.31	3.32
Lower CL	1.42	0.74	0.68	0.75	0.71	0.78	0.70	0.58	0.86	0.89	0.81	0.98	1.13	1.07	0.89	1.10	1.00	3.28	1.12	1.16	1.17	1.35

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

Indiana Trauma Registry
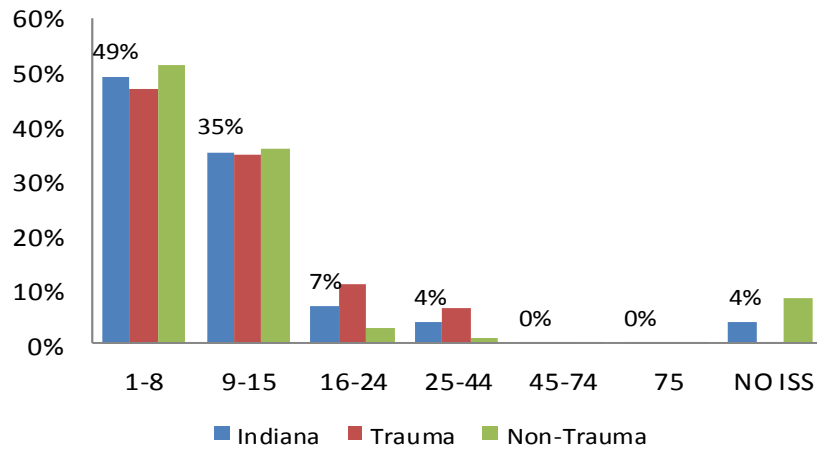
Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
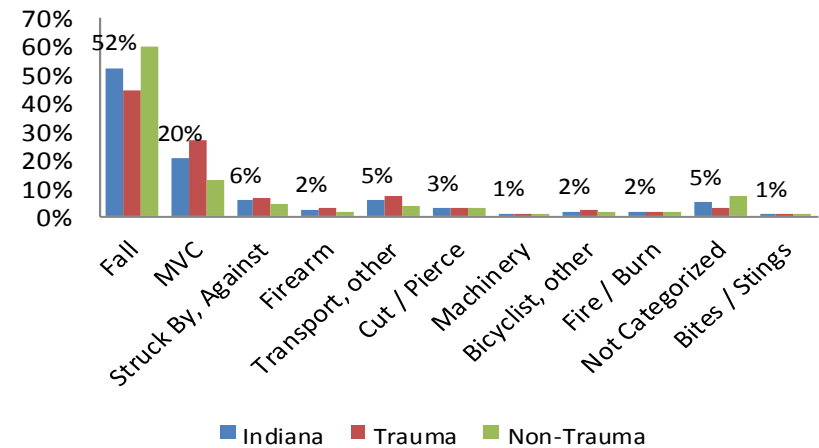8,814 Incidents

95 Total Hospitals Reporting
Trauma Centers: 11 facilities   52.7% of data
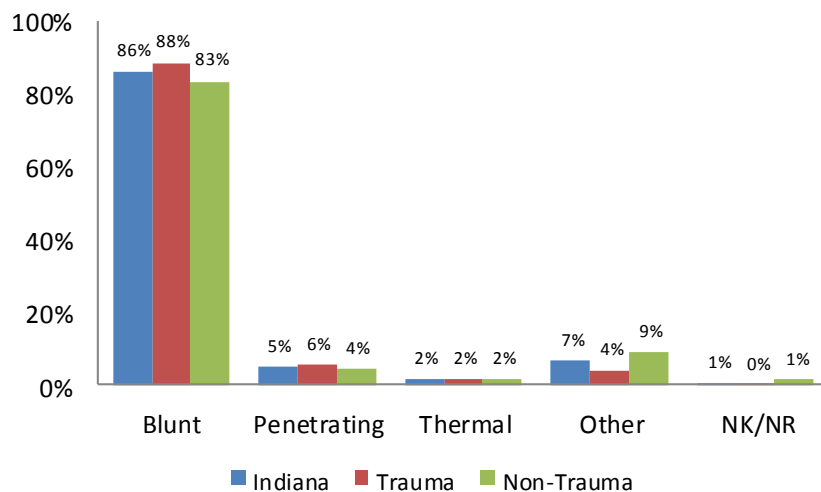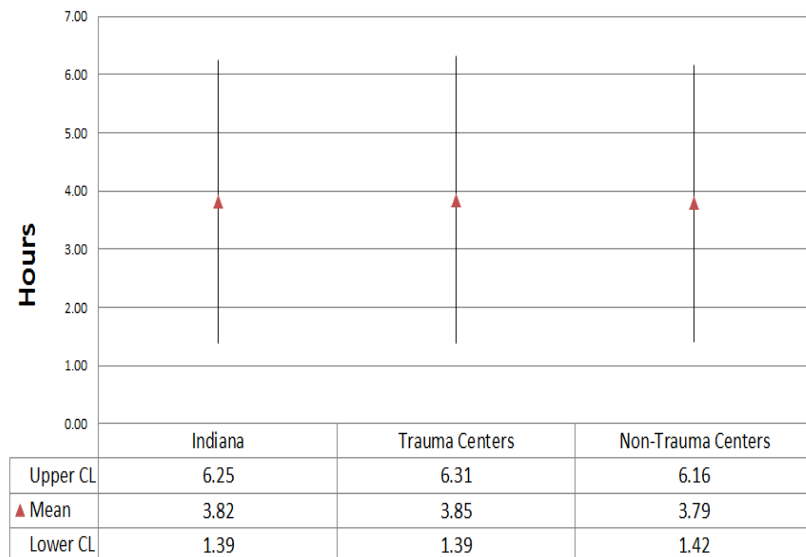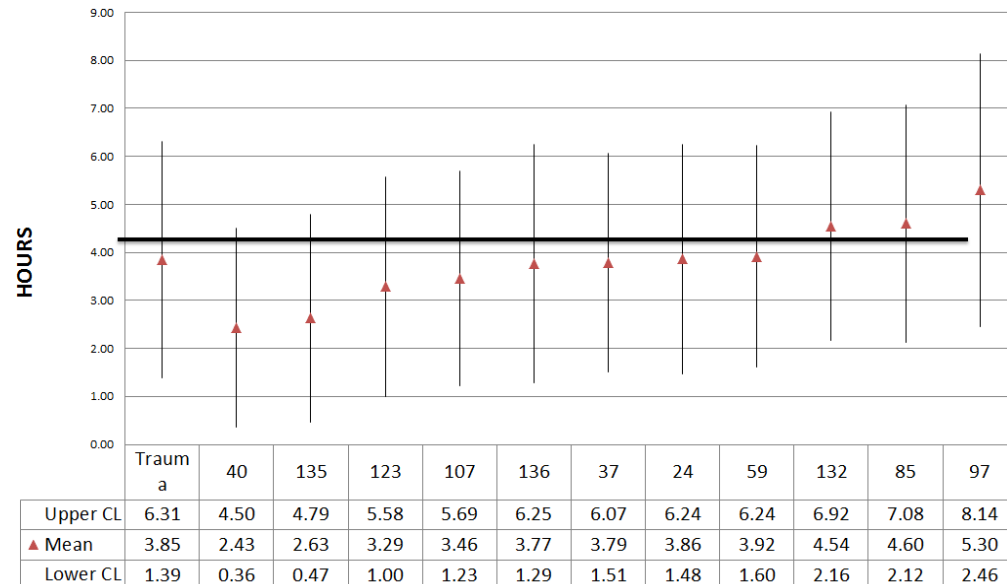(Non-Trauma) Hospitals: 84 facilities   47.3% of data

All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NTC 105	NTC 18	NTC 108	NTC 122	NTC 30	NTC 9	NTC 22	NTC 7	NTC 41	NTC 2	NTC 13	NTC 75	NTC 65	NTC 48	NTC 61	NTC 19	NTC 104	NTC 39	NTC 69	NTC 12	NTC 6
Upper CL	6.16	5.52	5.53	6.10	5.45	5.71	5.65	5.62	5.72	5.61	5.86	6.02	5.90	5.88	6.02	6.06	6.02	5.98	5.91	6.15	6.10	6.20
▲ Mean	3.79	3.35	3.37	3.42	3.44	3.45	3.47	3.47	3.48	3.55	3.56	3.61	3.69	3.71	3.72	3.72	3.81	3.81	3.85	3.85	3.90	3.96
Lower CL	1.42	1.18	1.21	0.74	1.43	1.19	1.29	1.32	1.24	1.49	1.26	1.20	1.48	1.54	1.42	1.38	1.60	1.64	1.79	1.55	1.70	1.72

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

Indiana Trauma Registry
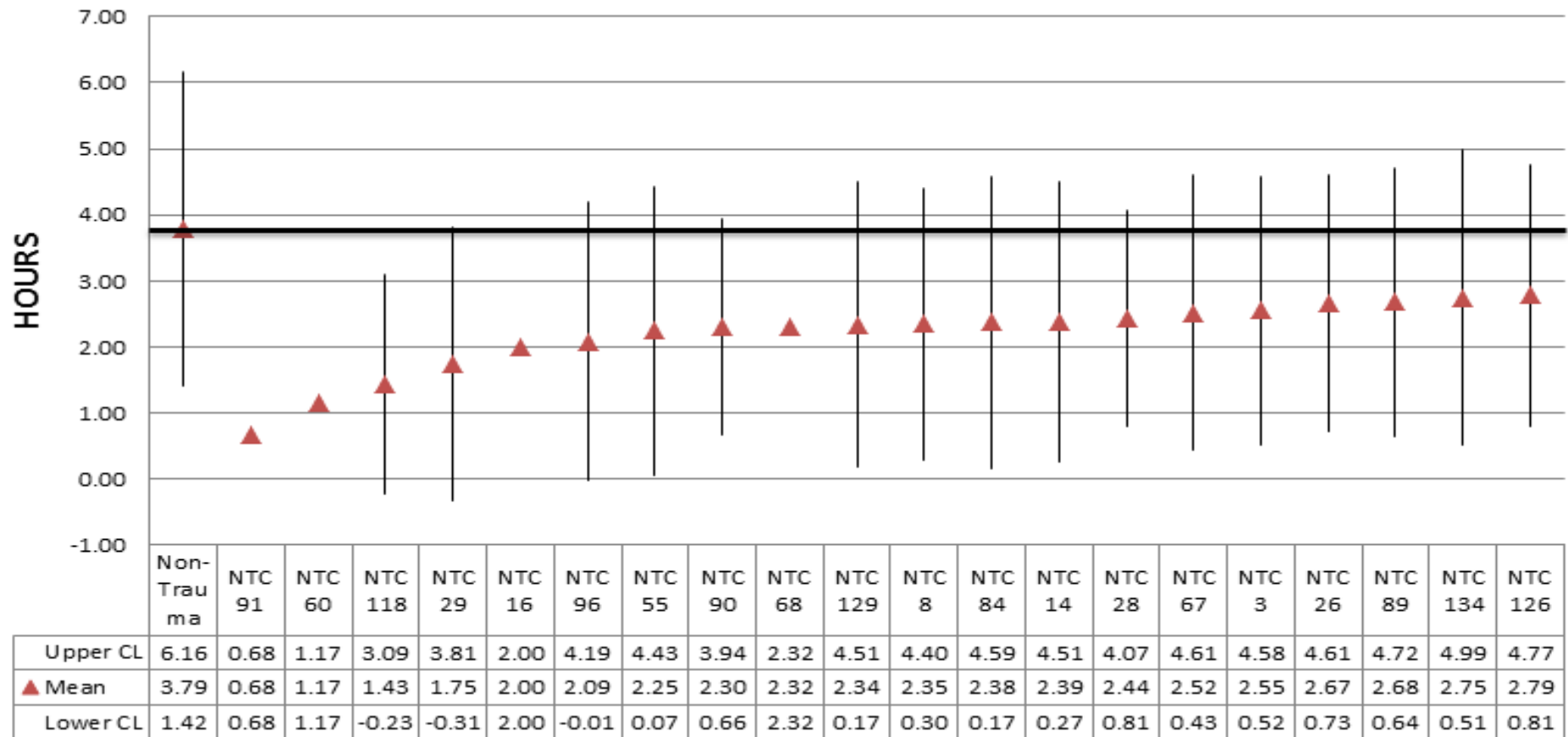
Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NTC 113	NTC 100	NTC 111	NTC 35	NTC 11	NTC 57	NTC 102	NTC 46	NTC 20	NTC 64	NTC 116	NTC 34	NTC 82	NTC 74	NTC 87	NTC 117	NTC 21	NTC 86	NTC 119	NTC 56	NTC 42
Upper CL	6.16	6.54	6.61	6.16	6.40	6.41	6.39	6.47	6.38	6.60	6.84	6.22	4.62	7.24	7.11	7.03	7.78	7.55	8.06	7.73	10.5	15.4
▲ Mean	3.79	4.06	4.09	4.09	4.10	4.11	4.12	4.13	4.14	4.28	4.40	4.56	4.62	4.67	4.74	4.82	5.03	5.16	5.42	5.61	7.49	11.8
Lower CL	1.42	1.58	1.57	2.02	1.80	1.81	1.85	1.79	1.90	1.96	1.96	2.90	4.62	2.10	2.37	2.61	2.28	2.77	2.78	3.49	4.40	8.36

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

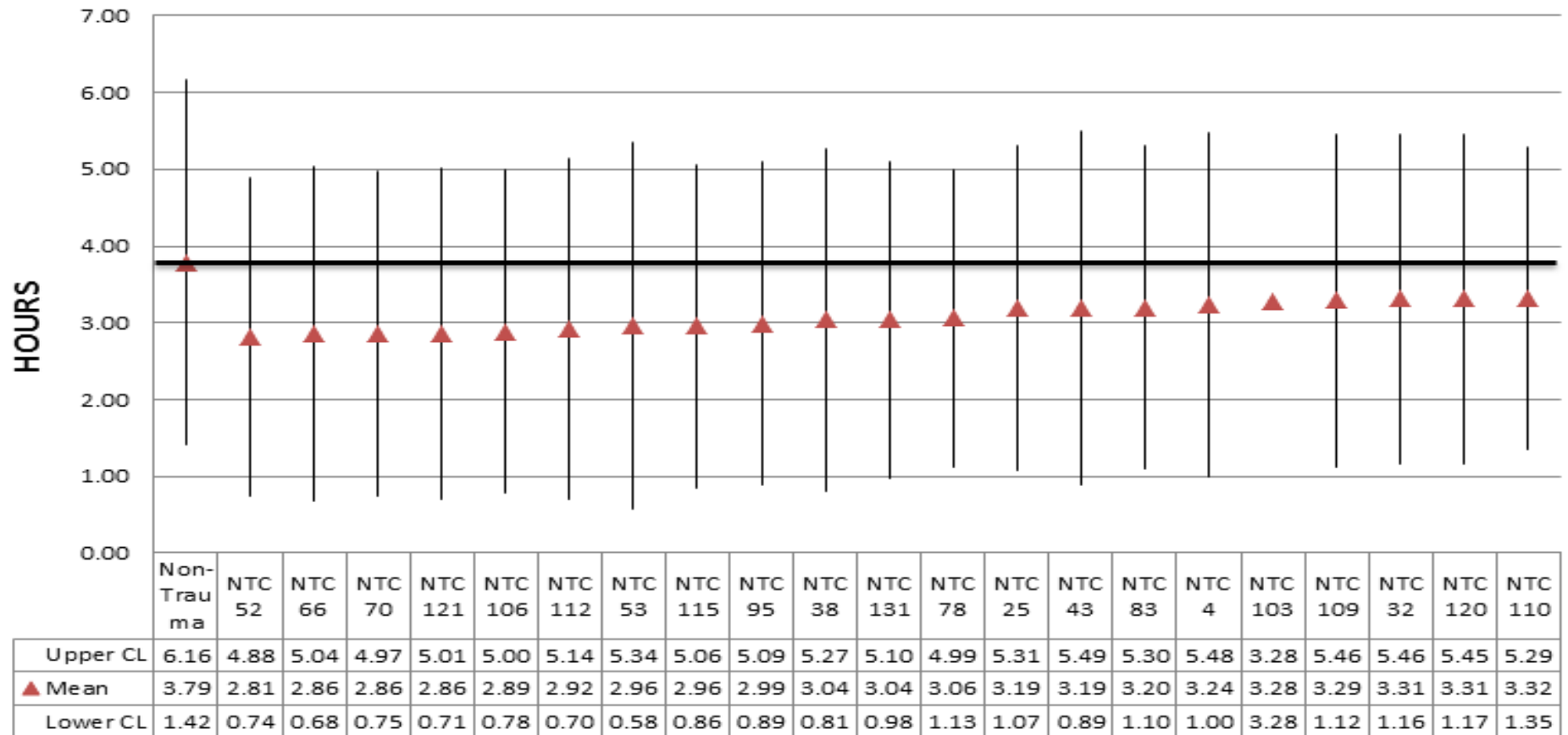# Indiana Trauma Registry
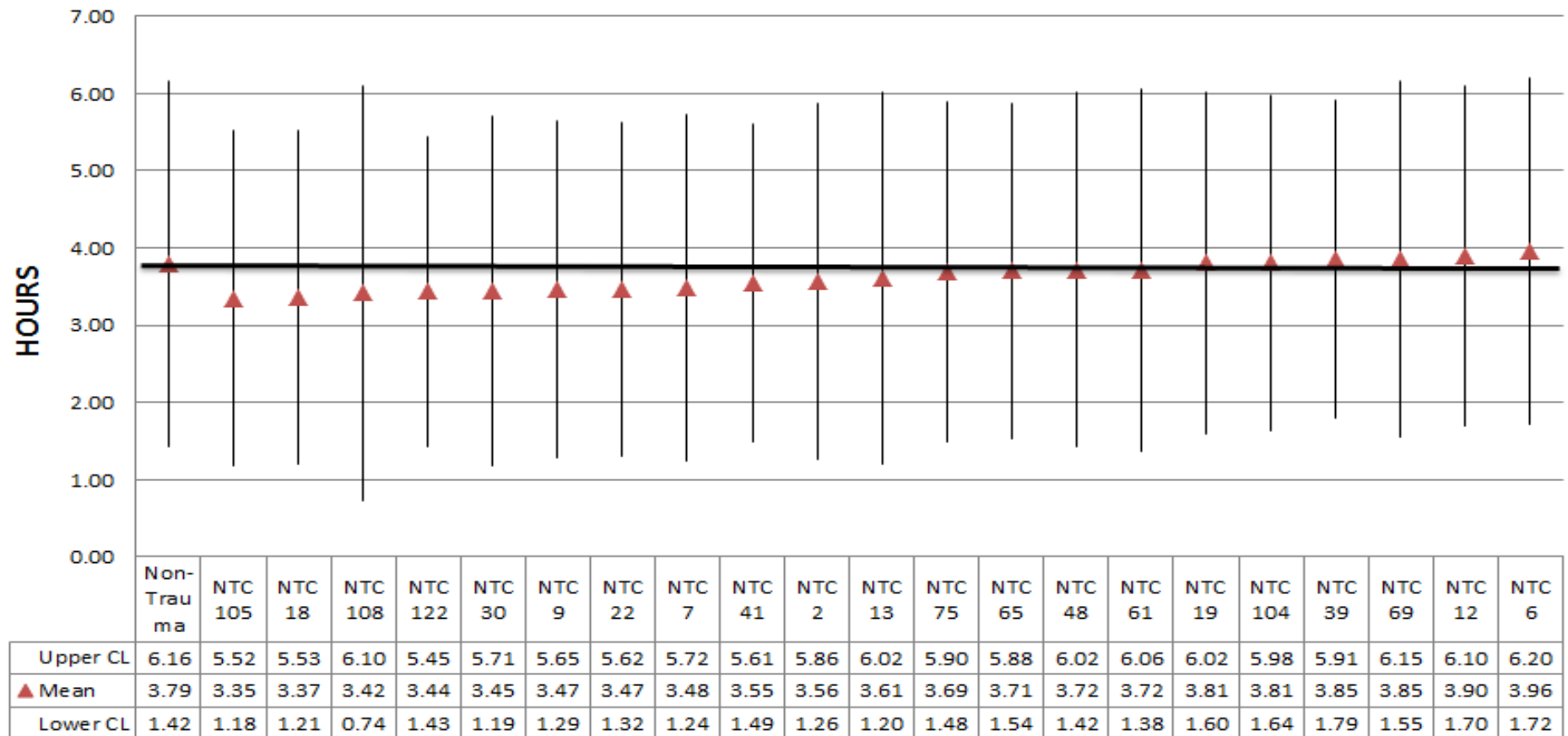
Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition = Transferred

Average ED LOS (Hours)

	Indiana	Trauma Centers	Non-Trauma Centers
Upper CL	5.45	5.64	5.44
▲ Mean	3.18	3.41	3.16
Lower CL	0.91	1.18	0.88

Trauma Centers-Average ED LOS (Hours)

Trauma	136	123	40	97	132	59	107	85	24
Upper CL	5.64	4.39	4.72	4.54	4.84	5.61	5.52	5.53	6.23	6.06
▲ Mean	3.41	2.37	2.54	2.57	2.75	3.35	3.57	3.62	3.67	3.94
Lower CL	1.18	0.34	0.36	0.59	0.66	1.09	1.61	1.71	1.11	1.82

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

The ED LOS for these graphs was modeled using time-to-event analysis. The purposes of using this analysis were to account for censoring (death) and to see how variables influence ED LOS. The outcome variable was ED LOS and the independent variables were total GCS and age. If total GCS was missing but manual total GCS was recorded, then the manual total GCS was used. These two variables were used because they were the most similar to variables used in the published, peer-reviewed literature on ED LOS. Both were significant in the model. Increasing total GCS and age led to a slightly shorter ED LOS. Hospitals that did not have enough incidents with total GCS or age could not be modeled.

In the chart on the left, note the trauma center average is above the mean and the non-trauma center is below the mean. The mean, 95% confidence limit and lower confidence limit are listed for each group.

In the chart on the right, the data is for the trauma centers. The trauma center average is in the first column on the left side. The information for each trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit are listed for each group.

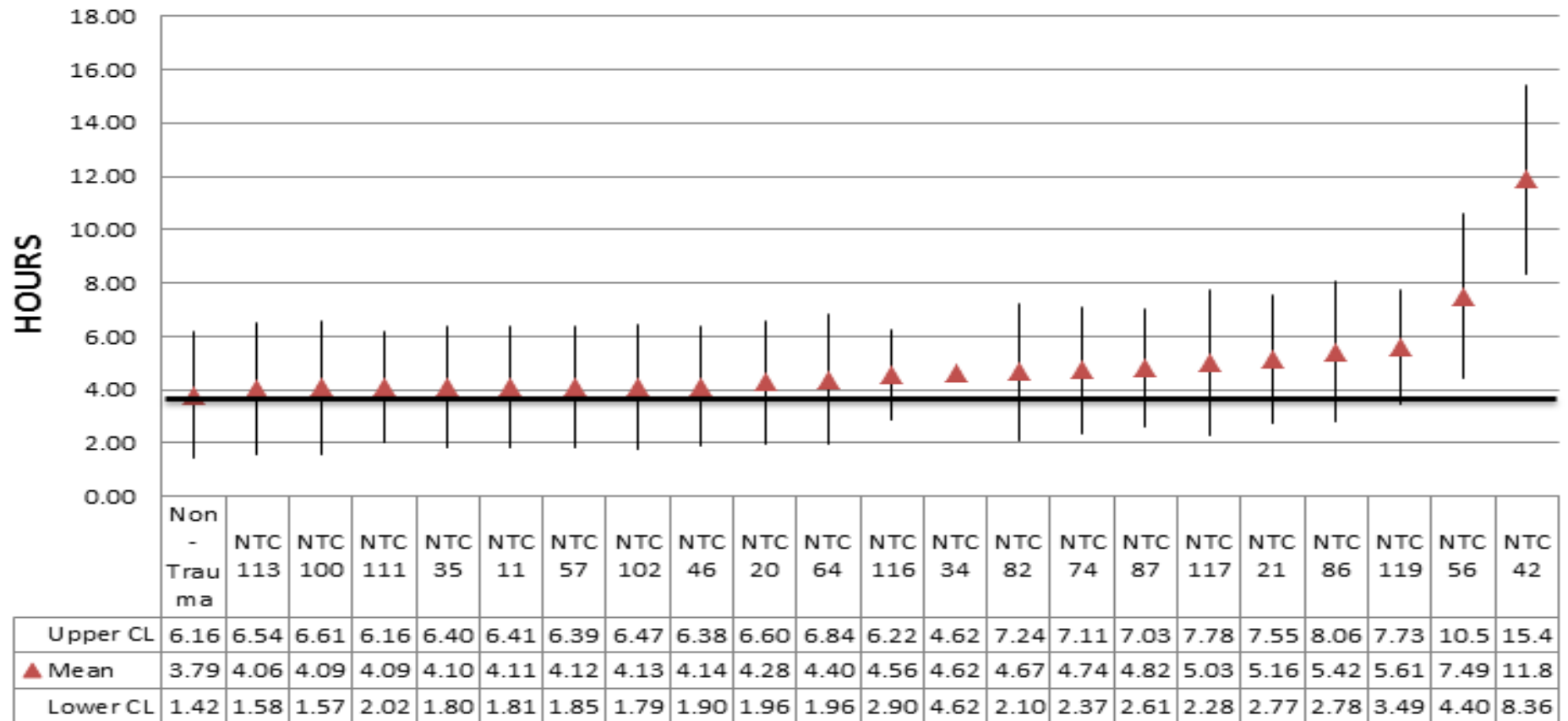# Indiana Trauma Registry

Statewide Quarter 3 Data Report
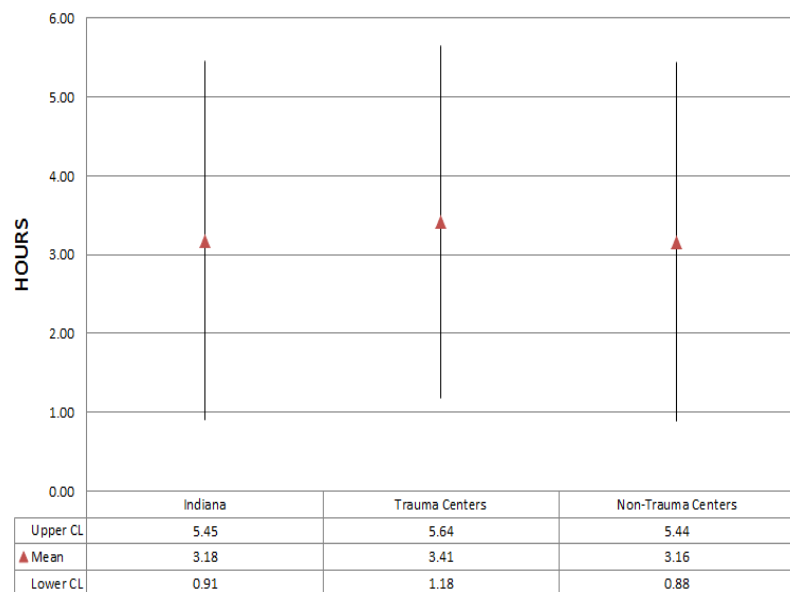**July 1, 2014 to September 30, 2014**
8,814 Incidents

95 Total Hospitals Reporting
Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition = Transferred
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NTC 91	NTC 60	NTC 118	NTC 29	NTC 129	NTC 14	NTC 96	NTC 8	NTC 55	NTC 90	NTC 68	NTC 126	NTC 67	NTC 84	NTC 4	NTC 112	NTC 134	NTC 28	NTC 106
Upper CL	5.44	0.68	1.17	3.09	3.81	3.99	4.01	4.10	4.26	4.28	3.94	2.32	4.28	4.54	4.59	4.41	4.65	4.52	4.07	4.67
▲ Mean	3.16	0.68	1.17	1.43	1.75	1.93	1.97	2.00	2.22	2.25	2.30	2.32	2.33	2.38	2.38	2.39	2.44	2.44	2.44	2.48
Lower CL	0.88	0.68	1.17	-0.2	-0.3	-0.1	-0.0	-0.1	0.18	0.22	0.66	2.32	0.38	0.21	0.17	0.36	0.23	0.36	0.81	0.29

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
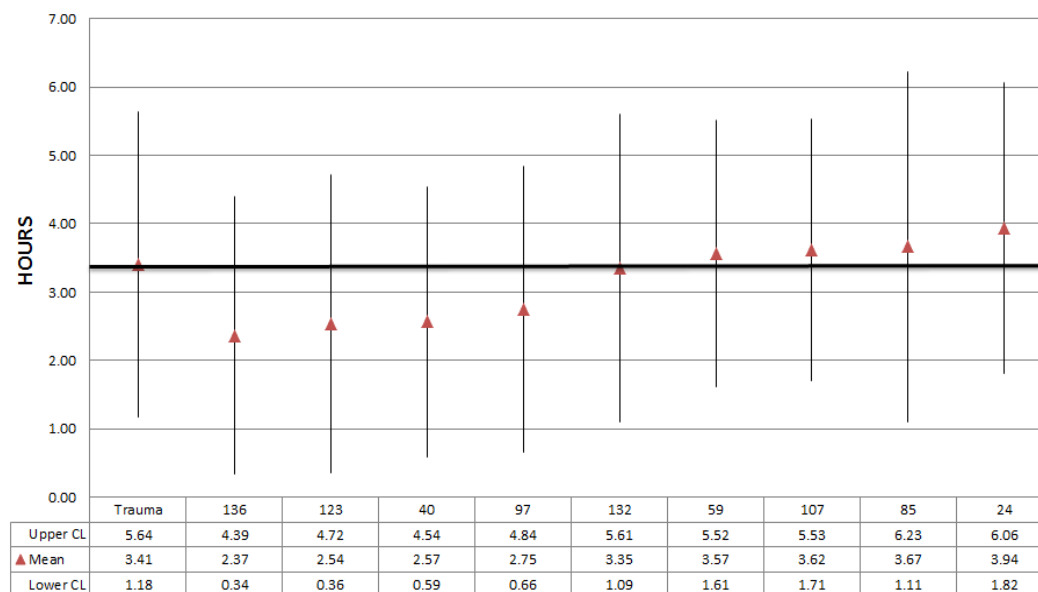**8,814 Incidents**

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition = Transferred
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NTC 26	NTC 89	NTC 61	NTC 122	NTC 32	NTC 52	NTC 115	NTC 41	NTC 131	NTC 95	NTC 30	NTC 22	NTC 121	NTC 66	NTC 70	NTC 83	NTC 19	NTC 38	NTC 53	NTC 43
Upper CL	5.44	4.45	4.56	4.79	4.54	4.73	4.74	4.76	4.93	4.92	4.94	4.94	4.97	5.01	5.04	4.98	4.92	5.23	5.12	5.01	5.29
▲ Mean	3.16	2.53	2.57	2.60	2.61	2.62	2.63	2.70	2.75	2.78	2.81	2.85	2.86	2.86	2.86	2.86	2.87	2.93	2.95	2.96	3.01
Lower CL	0.88	0.60	0.57	0.42	0.68	0.51	0.51	0.63	0.57	0.64	0.67	0.75	0.74	0.71	0.68	0.75	0.82	0.63	0.78	0.92	0.73

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

Indiana Trauma Registry
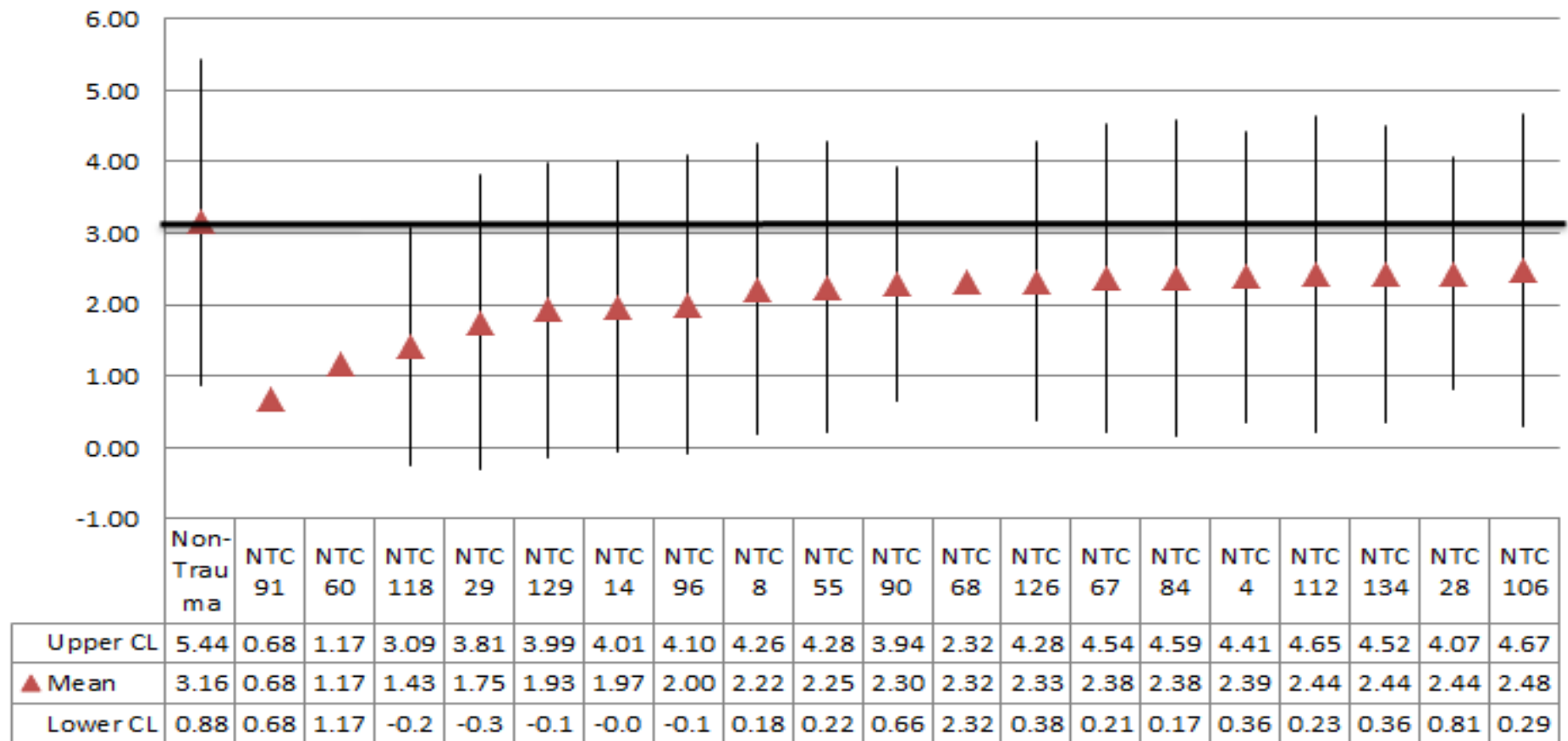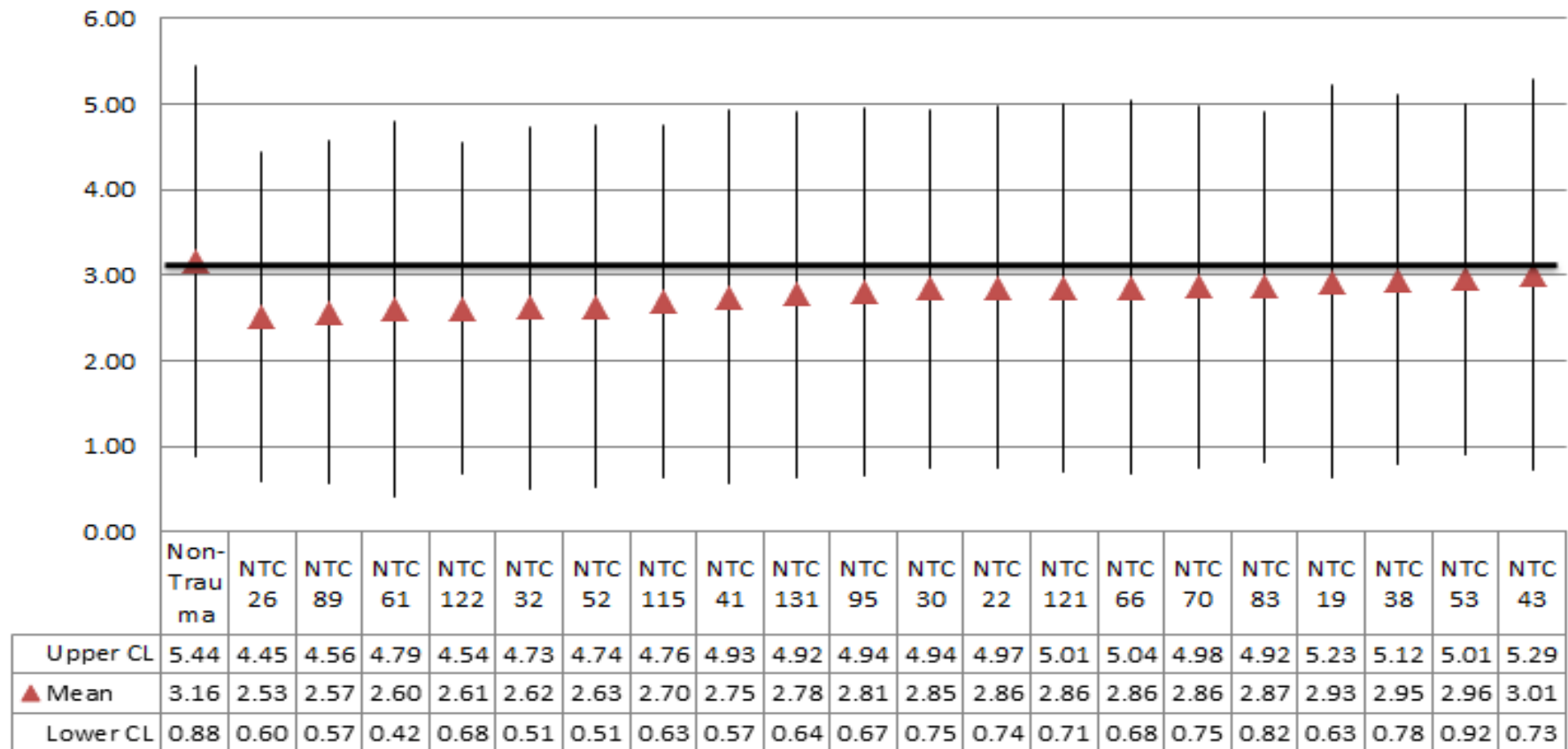
Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition = Transferred
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NTC 64	NTC 78	NTC 39	NTC 9	NTC 11	NTC 7	NTC 48	NTC 25	NTC 109	NTC 20	NTC 2	NTC 75	NTC 18	NTC 108	NTC 120	NTC 46	NTC 100	NTC 117	NTC 12	NTC 21
Upper CL	5.44	5.47	4.99	5.09	5.11	5.32	5.38	5.32	5.31	5.41	5.47	5.52	5.59	5.51	6.12	5.60	5.59	5.83	6.06	5.83	5.93
▲ Mean	3.16	3.02	3.06	3.08	3.09	3.11	3.13	3.18	3.19	3.22	3.24	3.27	3.33	3.34	3.43	3.44	3.46	3.54	3.60	3.70	3.70
Lower CL	0.88	0.56	1.13	1.07	1.06	0.90	0.88	1.04	1.07	1.03	1.01	1.01	1.07	1.17	0.74	1.28	1.33	1.25	1.14	1.56	1.48

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

Indiana Trauma Registry
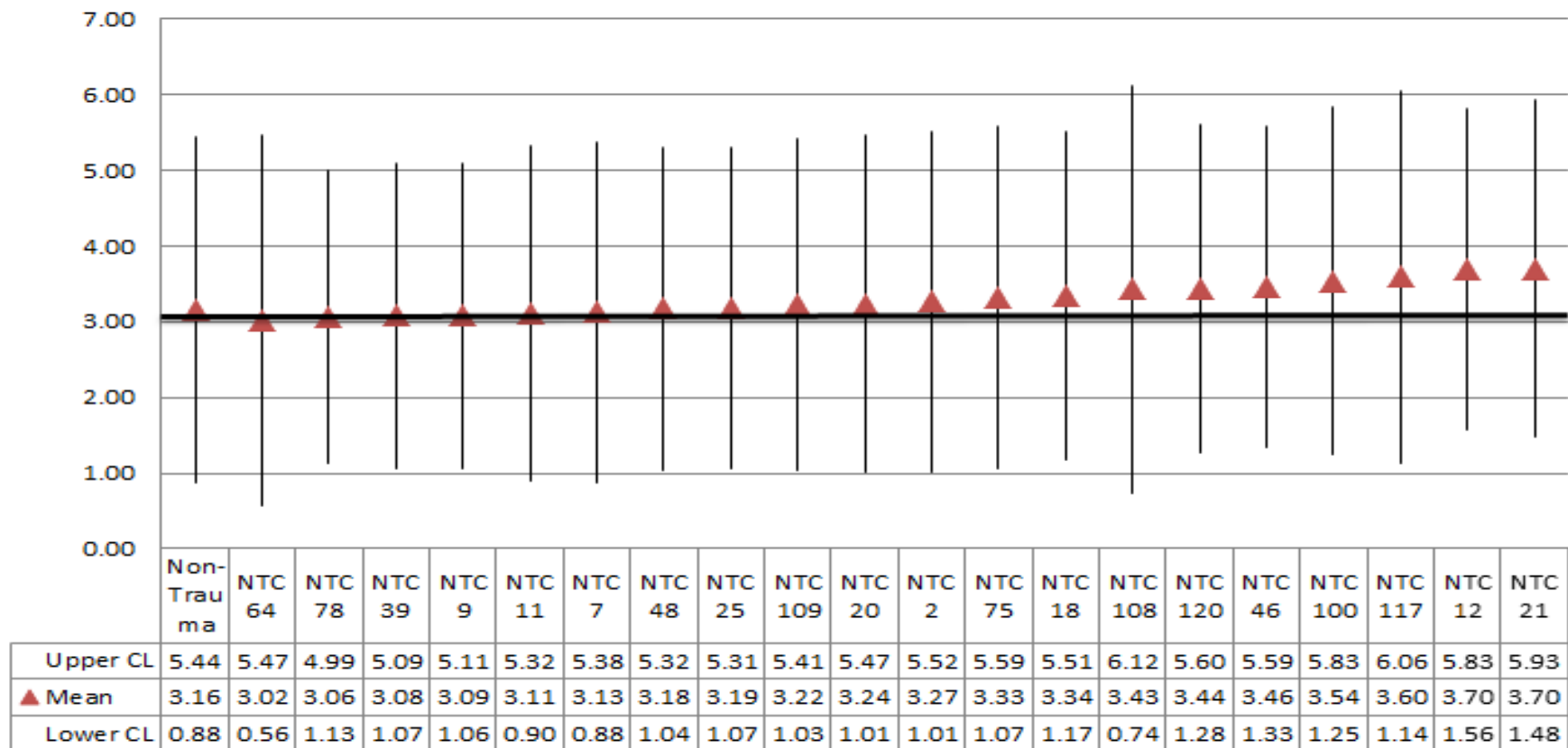
Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition = Transferred
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NTC 65	NTC 104	NTC 13	NTC 82	NTC 35	NTC 113	NTC 69	NTC 57	NTC 105	NTC 119	NTC 111	NTC 74	NTC 102	NTC 86	NTC 6	NTC 116	NTC 42
Upper CL	5.44	5.81	5.88	6.16	6.20	6.23	6.25	6.15	6.04	6.30	4.02	6.16	6.54	6.54	6.61	4.28	6.22	15.40
▲ Mean	3.16	3.71	3.74	3.76	3.78	3.79	3.82	3.85	3.85	4.01	4.02	4.09	4.09	4.18	4.25	4.28	4.56	11.88
Lower CL	0.88	1.60	1.60	1.36	1.36	1.35	1.40	1.54	1.66	1.72	4.02	2.02	1.64	1.82	1.89	4.28	2.90	8.37

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

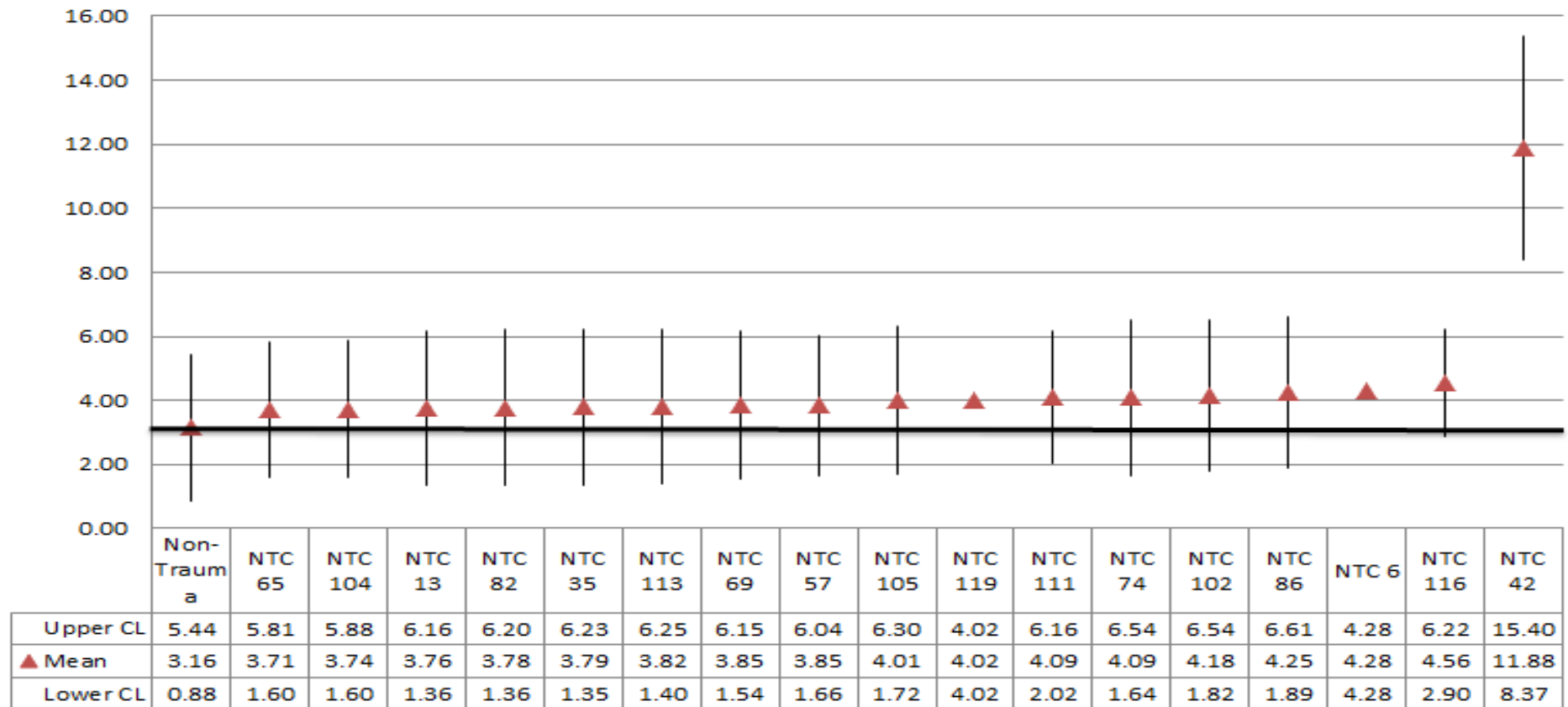# Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

ED Length of Stay

ED Length of Stay (minutes)			
	Indiana Average	Trauma Center	Non-Trauma Center
N=	7647	4432	3215
Average	236.7	237.4	235.9
Std. Deviation	175.6	182.2	165.9
Minimum	0	0	0
Quartile 1	140	133.5	147
Median	207	204	211
Quartile 3	290	294	285
Maximum	2582	2582	1793

ED Length of Stay by ISS

ED Length of Stay (minutes)						
ISS Category	Indiana Average	Indiana Average	Trauma Center	Trauma Center	Non-Trauma Center	Non-Trauma Center
	Counts	Minutes	Counts	Minutes	Counts	Minutes
1-8	3808	251	2063	259	1745	241.4
9-15	2748	234.5	1528	233.9	1220	235.1
16-24	589	214.4	492	313.4	97	220
25-44	330	169.4	292	170	38	165.2
45-74	21	152.2	20	142.9	1	339
75	14	77.7	14	77.7	0	-
No ISS	115	208.5	109	280.3	115	204.6

ED Disposition

ED Disposition (count)			
	Indiana	Trauma Center	Non-Trauma Center
Floor Bed	3823	2218	1605
ICU	1267	1113	154
Transferred	1578	156	1422
OR	667	531	136
Home w/o Services	185	91	94
Observation	432	232	200
Step-Down	305	77	228
Expired	79	51	28
AMA	1	0	1
Home W/ Services	3	0	3
Other	10	3	7
NK/NR/NA	464	171	293

*A bar graph of ED Disposition is found on page 2.
*A bar graph of ED Length of Stay is found on page 2.
*A Box and Whisker plot of ED LOS is found on page 3.
*A Box and Whisker plot of ED Length of Stay by ISS is found on page 3.

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

ED Disposition (count) by ISS Category

	Floor Bed	ICU	Transferred	OR	Observation	NK/NR/NA	Step-Down	Home w/o Services	Expired	Other	AMA	Home w/ Services	Total
1-8	1910	332	927	315	315	158	172	170	16	7	1	2	4325
9-15	1615	436	484	197	94	150	111	12	16	1	0	1	3117
16-24	151	275	75	76	12	7	12	0	11	1	0	0	620
25-44	24	198	26	69	1	5	5	0	25	0	0	0	353
45-74	0	11	0	6	1	1	0	0	3	00	0	0	22
75	0	6	0	2	0	0	0	0	7	00	0	0	15
NO ISS	123	9	66	2	9	143	5	3	1	1	0	0	362
Total	3823	1267	1578	667	432	464	305	185	79	10	1	3	8814

*Bar graph of ED Disposition by ISS is found on page 6.

Indiana State Department of Health
Indiana Trauma Registry

Hospitals Reporting Trauma Data
Quarter 3, 2014
July 1- September 30, 2014

H Trauma Centers

Deaconess Hospital
Eskenazi Health
IU Health - Arnett Hospital
IU Health - Ball Memorial Hospital
IU Health - Methodist Hospital
Lutheran Hospital of Indiana
Memorial Hospital of South Bend
Parkview Regional Medical Center
Riley Hospital for Children at IU Health
St. Mary's Medical Center of Evansville
St. Vincent Indianapolis Hospital

H "In the Process" Hospital*

Community Hospital of Anderson
Good Samaritan Hospital
St. Elizabeth East Hospital
St. Vincent Anderson Hospital

▲ Non-Trauma Hospitals

84 Non-Trauma Hospitals

* Considered a trauma center for purposes of the triage and transport rule.

Indiana State
Department of Health
Trauma and Injury Prevention
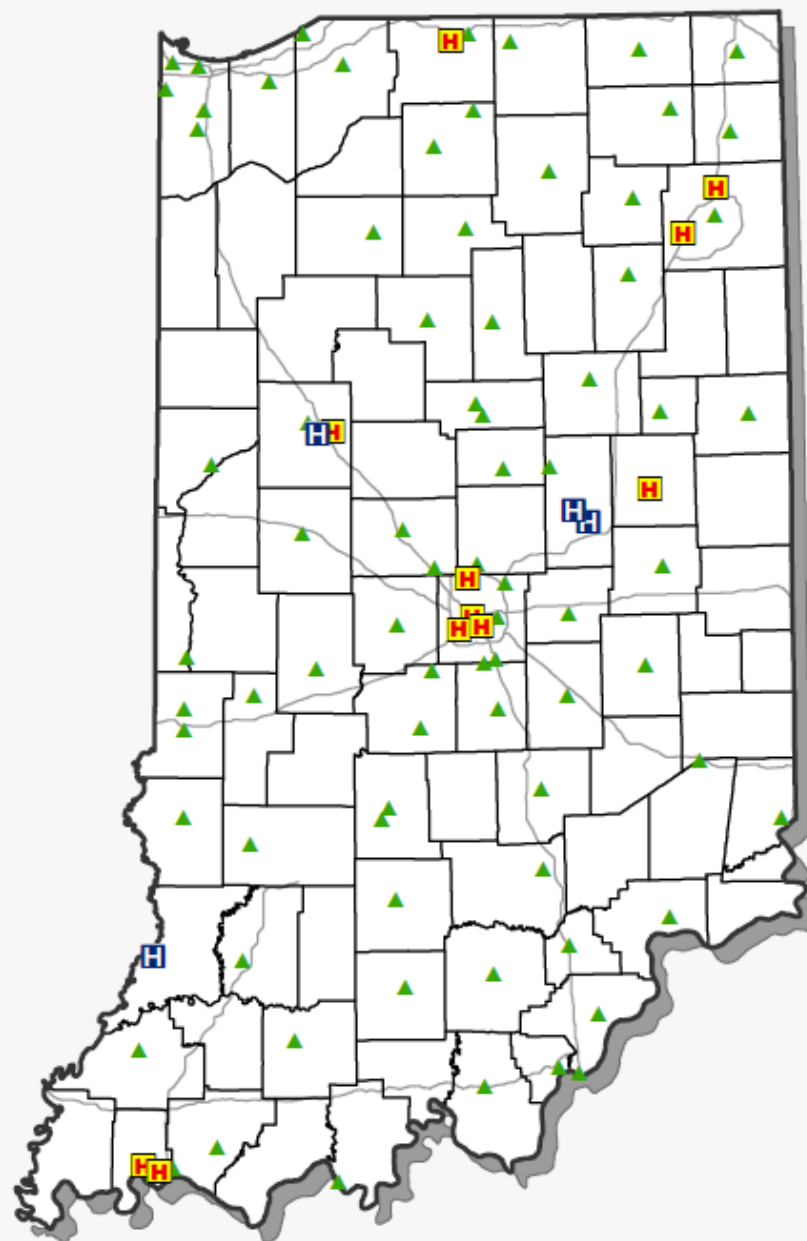
Map Author: ISDH ERC PHG and ISDH Trauma & Injury Prevention - February 2015

Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2014 to September 30, 2014
8,814 Incidents

95 Total Hospitals Reporting

Trauma Centers:	11 facilities	52.7% of data
(Non-Trauma) Hospitals:	84 facilities	47.3% of data

Requests and Changes to the Report from Trauma Care Committee members at the November 2014 ISTCC Meeting:

General Report:
- -We are continuing to track the number of cases that fell into the ED LOS >12 hours category, which is on page 2.
- -A map of all reporting hospitals is found on page 33. Note there were four "in the process" facility during Quarter 3 2014.
- -Average ED LOS by district may be found on pages 4 and 5. ED LOS is split out into transfers and critical transfers.
- -There were five cases with Ps >= 50% and ED Disposition of expired.
- - A fourth column for transferred patients with ISS>15 was added on pages 13 and 15.

Transfer data:
- -At the time this report was created, there were four hospitals deemed "in the process" trauma centers for the purposes of the triage and transport rule. Because this report spans data from July 1—September 30, 2014, and there were fewer than 5 hospitals with "in the process" status during the entire quarter, we cannot separate the "in the process" trauma center into its own column due to patient privacy. We were also unable to tease out "in the process" centers from hospitals on page 21 and 26 because of the same issue. Patients may be able to be identified due to isolation of one hospital's data. We recognized the suggestion of the Trauma Care Committee and will reconsider the idea for the next report.

Example Bar and Whisker Plot:
- -Bar and whisker plots were requested at the November, 2013 ISTCC meeting in order to show more than just an average ED LOS and ED LOS by ISS. The bar and whisker plots represent the four quartiles of data, as illustrated on the example graph to the right. The blue boxes each contain 25% of the values and the error bars each represent where 25% of the values fell. The median is represented in the middle of the two blue boxes with the white line. The red dot in the center indicates the average for that category. The cap on the error bars indicates the minimum and maximum of each category and all the values fall within the two caps.

- -For the ED LOS bar and whisker plots to the right, the average is represented by the white dot and the color boxes reflect the hospital type. The ED LOS by ISS plots on the next page follow the same layout and the red dots indicate the average for each of the ISS categories.

EXAMPLE CHART